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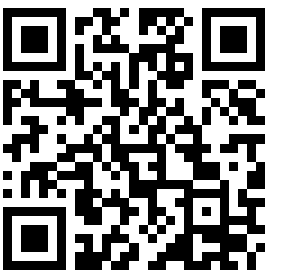
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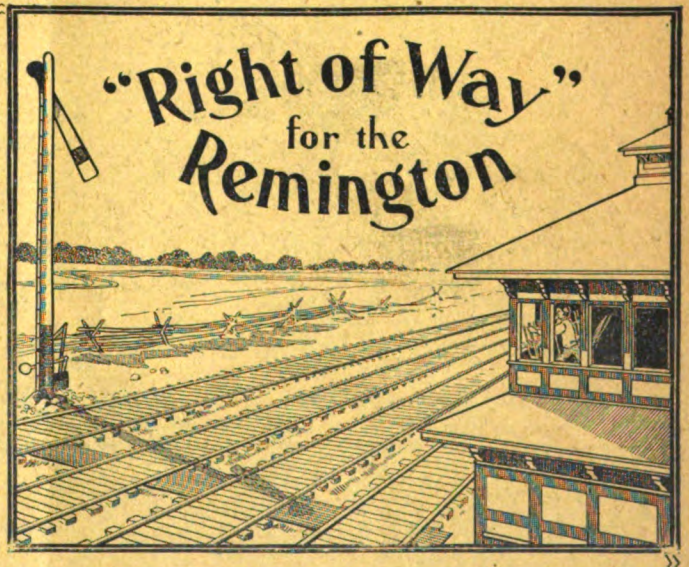
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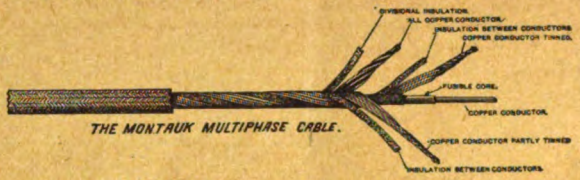
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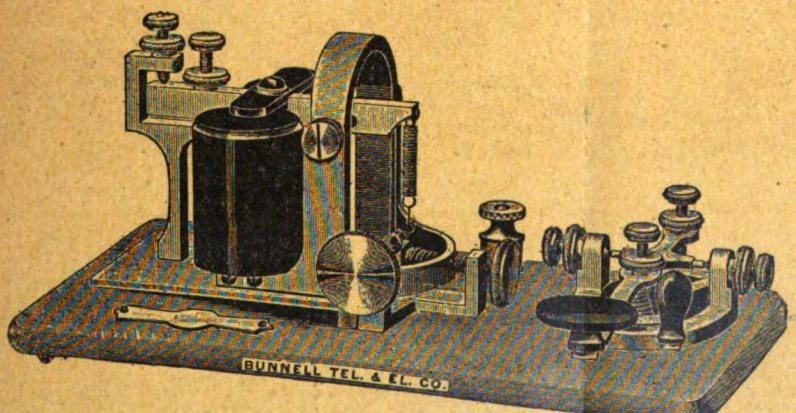
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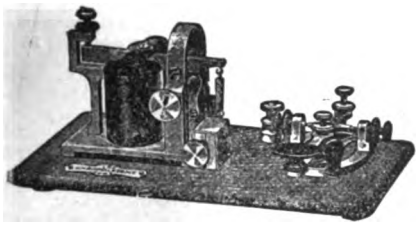
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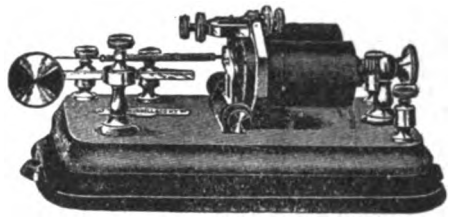
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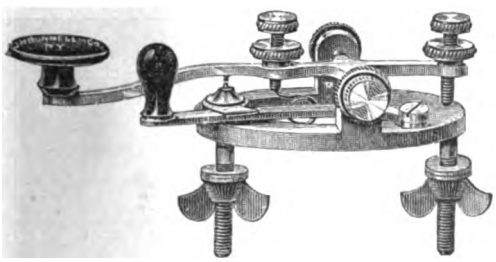
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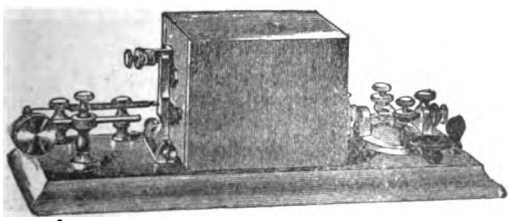
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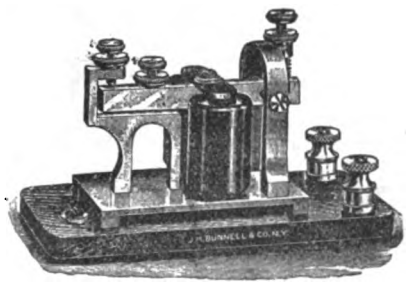
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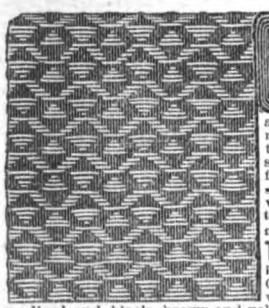
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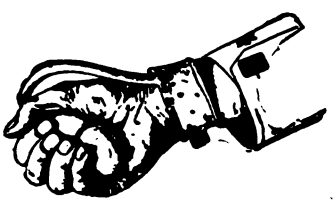
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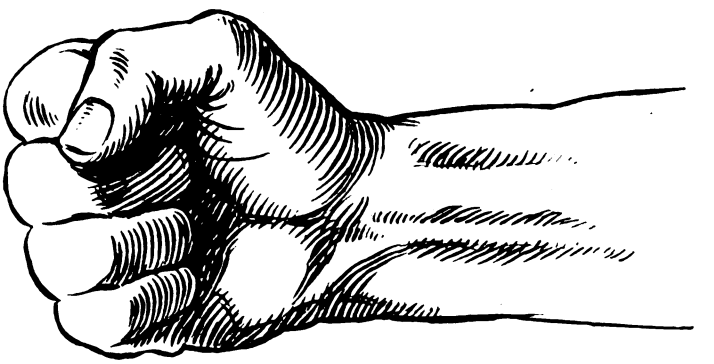


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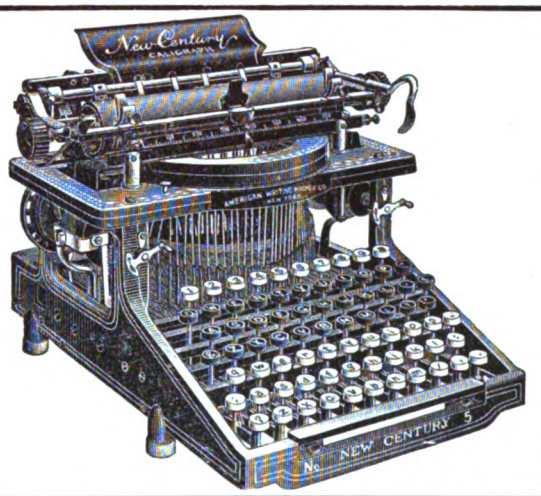
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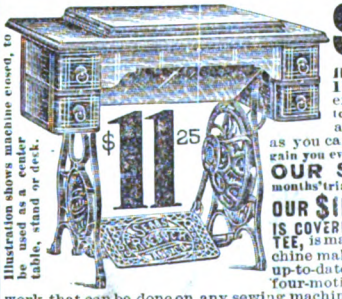
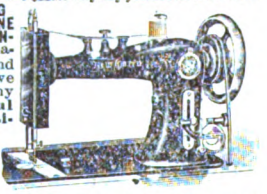


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THE TELEGRAPH AGE.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

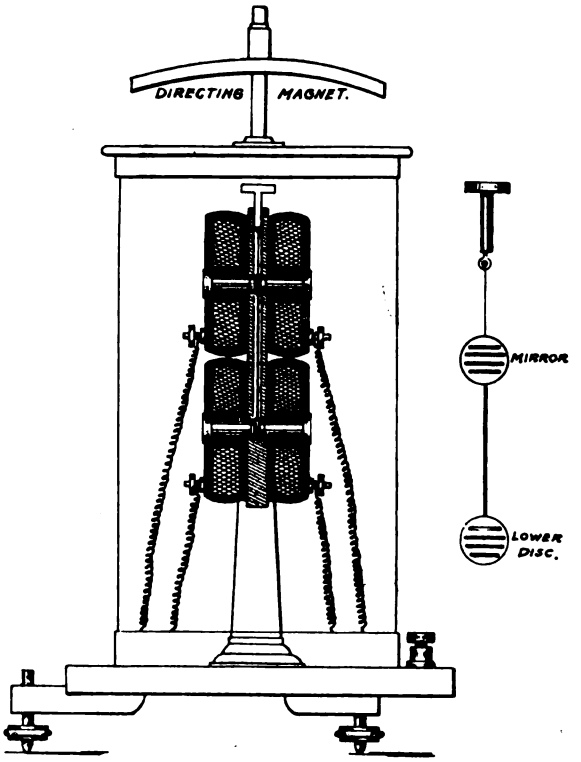
The Galvanometer—Continued.

For ordinary wire testing the previously described tangent and the detector galvanometers, as well as several other similarly constructed standard types, give general satisfaction, but it not infrequently happens that the resistance of a conductor to be measured is so great that the strength of the current flowing therein is too feeble to deflect the needle properly; or, again, the resistance of a conductor may be so small that the result obtained must be given in thousandths or millionths of an ohm. The insulation conductivity of a long telegraph wire "open" at the distant end is an example of abnormally high resistance, while a few inches of thick copper wire will represent the other extreme.

It is presumed that the reader knows that as a matter of fact there is really no such thing as an "open" circuit of any considerable length. Despite all precautions taken to prevent the current reaching the earth at points other than at the legitimate "ground" at the distant end of the circuit, it does find many little side paths along the route (principally at the telegraph poles) by means of which it "escapes."

On a well-insulated line the resistance of each such avenue of escape may measure many millions of ohms, but the circuit is "closed" just as truly as if the wire was properly "grounded" at the distant end. A relay inserted in such a circuit will show no evidence of a current, for the same reason that the needle of the said tangent or the detector galvanometer may fail to be properly deflected, viz., because both devices are not sensitive enough. To meet this difficulty an extremely senitive galvanometer has been constructed which employs a mirror, the purpose of which is to throw a beam of light on a scale situated some distance from the instrument. The beam of light takes the place of a pointer, and aside from the advantage of possessing no weight, may cover an extensive range over a long dial or scale, which latter in turn may be graduated into many small divisions.

Another happy feature of this pattern of galvanometer is that when the beam of light from the distant candle reaches the mirror, the latter reflects it back to the scale at an angle which to all practical purposes corresponds to the tangent of the angle of deflection; hence one reads directly



Thomsons Reflecting Galvanometer.

from the scale and is not bothered by having to refer to a table of tangents. One of the best known instruments of this kind is the Sir William Thomson (Lord Kelvin) reflecting galvanometer, the general features of which are shown in the accompanying diagram.

This instrument possesses four coils, two of which are situated immediately above the companion pair, while between the two are suspended the needles and mirror, which latter is the feature of the galvanometer. The small figure at the right shows the construction of the needles and mirror. Two small disks of light material are rigidly fastened to a common shaft, to which a fine cocoon

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fiber thread is attached for the purpose of suspending the device from a hook immediately over the coils of the galvanometer. The astatic arrangement of the needle is employed—that is to say, the N———S needle of the upper disk opposes the S———N needle of the lower one.

Instead of a single needle for each disk, however, the latter possesses several very small needles, or short bars of magnetized watch spring each, about one-half an inch in length, but the two groups act as if they were simply two single needles. The needles are attached to the back of the disks, as shown in the small cut, and when under the magnetic influence of a current of electricity cause the disks to turn either to the right or to the left. The mirror is attached to the upper disk only. When a beam of light from a distant lamp strikes the mirror it may be reflected to any desired spot, as a mischievous schoolboy with a pocket mirror throws the sunlight in a companion's eyes.

In practice the mirror and scale are so arranged that when the coils of the galvanometer are free from a current of electricity the beam of light is thrown directly on the zero mark of the scale. The presence of a current turns the mirror, which in turn throws the light to the right or to the left of the zero mark, thus indicating on the scale the value of the current.

The curved piece of metal over the instrument is a magnetized piece of steel called the directing magnet. Its purpose is to control the needles and cause the beam of light to point to the zero mark when no current is present. Theoretically the directing magnet is supposed to point due north and south, but as its magnetic strength is so much greater than that of the earth's influence, it is not absolutely necessary to so arrange it. The directing magnet is capable of being raised, lowered, or turned to the right or to the left as may be desired; and foreign influences over the needle were originally intended to be corrected by thus shifting the position of the said magnet.

This galvanometer, however, is so sensitive to vibrations that the very act of shifting the directing magnet causes the beam of light to dance about in a very annoying manner. It has been found that a small bar of magnetized steel placed on the table near the galvanometer may be employed for the purpose of controlling the needles in a much more satisfactory manner. By merely shifting the piece of metal on the table from one point to another, the beam of light may be quickly brought to zero without the slightest jarring of the galvanometer or mirror.

Every precaution should be taken to guard the instrument from the annoying effects of vibrations of all kinds. The evil effects of the jarring of the building, due to the motion of elevators, slamming of doors, etc., are best eliminated by setting the galvanometer on a wooden base and attaching the latter, as it rests on the table, to the ceiling or other convenient points by means of small cords and rubber bands. The latter seems to take up, as it were, ordinary vibrations and permits the beam to rest steadily on the dial.

The Thomson galvanometer not only represents the most sensitive type of electrical testing devices, but furnishes the identical principle which led to and is to-day employed in one system of submarine cable telegraphy. The apparatus of the latter is practically a Thomson's galvanometer, the mirror of which reflects a beam of light above or below a certain straight line, according to the direction of the feeble charging current which is controlled by the sending operator. If the reflections above the line represent, say, "dots," and those below it "dashes," it is evident that a key which will reverse the polarity of the cable charging battery after the manner of a duplex pole changer, may be used in the usual way to make the alphabet, which will appear temporarily on the scale, letter by letter, in the form of dancing beams of light. These signals are read by sight and dictated to a companion, who writes them down as they appear.

(*To be continued.*)

KAISER AT A LECTURE.—Professor Slaby, of the Technicsche Hochschule, Berlin, Germany, lectured, December 22, in the presence of Emperor William upon his system of multiple wireless telegraphy, and made experiments showing the reception of messages from Charlottenburg, two miles west, and Schoenweide, eight miles east of Berlin, simultaneously. These messages were caught on the same lightning rod. Professor Slaby stated that the same receiving wire would serve for an indefinite number of messages coming simultaneously, while excluding all exterior currents that were not wanted. The Emperor listened intently, and after the lecture engaged Professor Slaby in earnest conversation for a half hour.

WHAT ONE FIGURE DID.—All the recent diplomatic tangle in Pekin was caused by one little figure 1. The State Department cipher is all in figures, and when Secretary Hay cabled to Minister Conger to support the objections of the British Minister to the language of the note to China the cable company dropped one little figure 1. As it happened, this so altered the meaning of the dispatch that it made it read as if Mr. Hay were instructing Minister Conger to oppose the British view. This he did. Hence all the trouble.

The Telegraph in Africa.

A despatch from Durban, Africa, announces that the Cape to Cairo telegraph line is now in operation to a point fifty miles north of Katanga and a hundred miles beyond the southern line of Lake Tanganyika.

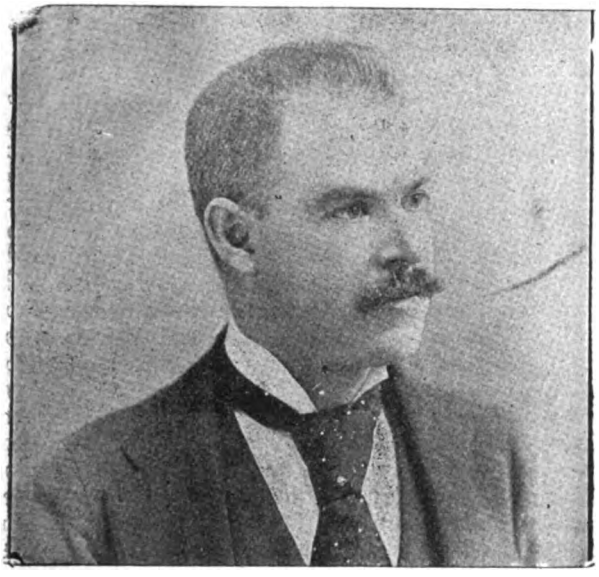
Under the terms of an agreement entered into in 1899 between the German government and the African Transcontinental Telegraph Company the line between Cairo and Cape Town must be completed within five years from that date. The distance from Cape Town to Katanga as the crow flies is nearly thirteen hundred miles. This is just about what remains to be done, for telegraphic communication between Cairo and Khartoum, a distance roughly estimated at 750 miles, has been assured since the downfall of the Khalifa.

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Appointed General Superintendent.

Mr. L. D. Parker, general superintendent, Postal Telegraph-Cable Company, Chicago, Ill., owing to continued ill-health, has resigned and Mr. Edward G. Nally, assistant general superintendent of the same place, has been appointed as his successor. Mr. Nally has had eight years' experience in the office of the assistant general superintendent and is well qualified to perform the duties of his new office, which he assumed January 1.

Mr. Nally was born in Philadelphia, Pa., April 11, 1860. He commenced his telegraph career with the Western Union Telegraph Company as a messenger, at St. Louis, September 1, 1875. A year later he was promoted to be assistant bookkeeper. Later he was placed in charge of the city line business. In 1878 he was appointed to a clerkship in Colonel Clowry's office, then district superintendent at St. Louis, after which he filled several important positions in the service until 1882, when



MR. EDWARD G. NALLY,
General Superintendent, Postal Telegraph-Cable Co., Chicago, Ill.

he followed I. McMichael, who was Colonel Clowry's, and subsequently Colonel Baker's, assistant, to Minneapolis, Mr. McMichael having shortly before been appointed superintendent and placed in charge of the lines formerly the property of the Northwestern Telegraph Company. In 1885 Mr. Nally was appointed chief clerk to Superintendent McMichael, which position he filled until October 20, 1890, when he accepted the position of assistant to the general superintendent, Western Division, of the Postal Telegraph-Cable Company, which position he filled so very acceptably that he was made assistant general superintendent January 1, 1892. Mr. Nally is one of the most competent, faithful and hardworking men in the telegraph profession.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.

Bell Telephone Wins Royalty Suit.

Royalties amounting to millions of dollars are lost to the Western Union Telegraph Company by Judge Colt's decision at Boston, December 21, in the United States Circuit Court, in the suit brought against the National Bell Telephone Company, the predecessor of the American Bell Telephone Company, November 10, 1879.

The case, which was brought in the United States Circuit Court in 1883, was decided in favor of the defendant, the plaintiff's exceptions to the master's report being overruled, and the report of the master, who was the late Judge John Lowell, is sustained.

Their claim to royalties was mainly based upon a claim of twenty per cent. of the profits received by the defendant from its exchange business and that percentage of certain stocks which it received from various subsidy corporations which sprang up during the contract period from November 10, 1879.

The contract passed from the plaintiffs all their telephone patents and telephone business to the National Bell Telephone Company, which was succeeded by the defendant. Before the contract was made the plaintiffs and the defendant had been rivals and competitors in the telephone business, each claimed the right of exclusive control, and they were in long and expensive litigation. The object of the contract was to secure to the defendant the telephone business of the country.

The defendant, which was then known as the National Bell Telephone Company, agreed to pay to the plaintiffs twenty per cent. of all rentals or royalties received from licenses for telephones in the United States. The Bell company issued licenses to sundry corporations, and received, in addition to the annual rental for telephones, thirty-five per cent. of the capital stock of these concerns, and the plaintiffs claimed that this stock was "rentals or royalties" within the meaning of the contract, and that they were entitled to twenty per cent. of the stock and the dividends on it.

The defendant, whose contention prevailed, contended that the "rentals or royalties" mentioned in the contract were the standard annual rentals, less commissions, and nothing more. The exchange business was not in it, the defendant contended, as it claimed the exclusive right under the contract to carry on the exchange business and to receive the profits or to license another corporation to carry it on, receiving from such license a share of the profits.

The case turned on the construction of the words "rentals or royalties" in the contract. The contract was to pay the plaintiffs twenty per cent. of "all rentals and royalties actually received or rated as paid in accordance with the provisions of the contract from licenses or leases for speaking telephones."

This raised the underlying question of whether "rentals or royalties" included profits from the exchange business done by the defendant during the contract period, or referred only to standard annual rentals for telephones. The Court holds that

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the contract clearly shows that the accounting contemplated by this defendant to these plaintiffs for telephones leased in the United States is strictly confined to rental of telephones, and does not extend to profits derived from the employment of the telephone in various ways.

Cable Companies' Statements.

The Mexican Telegraph Company, with a capital of $2,000,000, reports gross receipts from 1881 to December 31, 1900, of $6,165,489; net profits, $4,531,303. Dividends paid amount to $3,122,886, leaving a surplus of $1,408,416, of which $531,654 has been invested in the plant, such investment having been capitalized and issued to shareholders in full-paid stock, leaving a balance of $876,762, which is represented in first-class securities and cash in bank. The operating expenses, repairs and renewals have averaged less than 27 per cent. of the gross receipts.

The statement of the Central and South American Telegraph Company for the six months ending December 31 is given as follows:

Previous surplus		$576,845
Traffic receipts	$420,202	
Operating expenses	188,000	
Net	232,202	
Other income	5,600	
Total net	237,802	
Div. Oct., 1900, and Jan., 1901	231,768	
Surplus		6,034
Total		$582,879

The Galveston disaster in September was severely felt by the company, cable repairs costing $53,445. This amount has been taken from the surplus account, reducing that item, Deecember 31, 1900, to $529,433.

The company has a capital of $8,000,000. The cables of the company, 7,500 miles in extent, have earned gross receipts from 1882 to December 31, 1900, of $12,503,465; net profits, $8,049,566. Dividends of $6,203,932 have been paid, leaving a surplus of $1,845,633, of which $1,316,200 has been invested in extensions and improvements, leaving a net surplus of $529,433. Operating expenses, repairs and renewals have averaged less than 36 per cent. of the gross receipts. The operations of the company for the year show a gain of surplus amounting to $4,260.

Telephoning Under the Sea.

The Southern Bell Telephone Company has been conducting experiments at Key West, Fla., recently, to test the feasibility of transmitting the human voice under the Gulf of Mexico through the medium of telephones connected to a submarine cable. Tests were made by an agent of the Southern Bell Telephone Company, of Atlanta, Ga., through the courtesy of Manager Atkins, of the Interocean Telegraph Company at Key West, and were not entirely satisfactory. They demonstrated almost conclusively the impracticability of successful telephonic communication by cable.

Two long-distance telephones were used in the experiments, one instrument being connected with a cable in the Key West office, and the other with the cable office at Havana. After repeated trials, the words "Hello" and " I don't understand you" were distinguished as coming from the operator at Havana, but all attempts at conversation proved fruitless, and the experiment was abandoned. Manager Atkins said that the voices sounded muffled and were merely indistinguishable, blurred sounds, as though coming up from some deep underground cavern.

He said that similar experiments were made some time since by cable connection between Dry Tortugas and Key West, which were equally unsuccessful.

Chicago Board of Trade and Its Quotations.

Officials of the Western Union Telegraph Company and the Postal Telegraph-Cable Company have stated that their companies have accepted terms imposed by the Chicago Board of Trade officials for renewal of market quotation service, excepting the exaction that these companies shall not be privileged to render market quotation service in Chicago, which privilege has been placed with the Cleveland Telegraph Company, a local ticker concern, and which, as President Warren is quoted as saying, is dominated by the Board of Trade.

Since the agreement reached with the telegraph companies new complications have arisen. Frank B. Riordan, a member of the Board of Trade, whose suspension has been talked of, has obtained an injunction restraining the Board of Trade from expelling him from that body and the two telegraph companies from discontinuing his quotation service. Mr. Riordan also charges the officers of the Board of Trade with jeopardizing the interests of its members, one of the charges being that President Warren endeavored to force upon the Western Union Telegraph Company at an extravagant price the plant of the Cleveland Telegraph Company. Mr. Riordan asks for an early hearing of his charges.

HOME FOR TELEGRAPHERS.—Paul W. Bossart, a well-known old-time telegrapher, was interviewed in Denver, Col., a few days ago by a prominent newspaper on the subject of a home for telegraphers. Mr. Bossart, who has taken a lively interest in the subject, is inclined to favor the plan embodied in the Childs-Drexel home for printers, located in Colorado, and he hopes that such well known old-time telegraphers as Andrew Carnegie and Thomas A. Edison will be induced to contribute to so worthy an object.

T. M. B. ASSOCIATION.—Assessment No. 373 has been levied to meet the claims arising from the deaths of Joseph W. H. Watson, of Newport, Del.; George Gerkin, of Marietta, O.; Verne M. David, of Buffalo, N. Y.; George W. Gardanier and John J. Daly, both of New York city.

The Oregon short line has installed a quadruplex system on its telegraphic line between Salt Lake City, Utah, and Pocatello, Idaho.

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Block Signals.*

BY H. T. SIMPSON.

The principle of block signalling is so generally understood that it is hard to say much on the subject that will be new, yet I think it may be interesting to discuss the different methods in use on the railroads with which we are connected. Conditions enter largely in deciding what method is most suitable, and the Railway Association has adopted as standard three methods, defining them:

First: The telegraph block as one in which the signals are operated manually upon information by telegraph.

Second: Controlled manual block, in which the signals are operated manually and so constructed as to require the co-operation of the signalman at both ends of the block to display a clear signal.

Third: Automatic block, in which the signals are operated by electric, pneumatic or other agency actuated by a train or by certain conditions affecting the use of a block.

The first method has been long in use, but is thought to be weak in not having any check on the signalman. The second is, I think, the most desirable on a single track road, as it is necessary to protect both ahead and in the rear. This is the method in use on the road with which I am connected (Chesapeake and Ohio), we using what is known as the Leonard Electric Block machine, of which we have about one hundred and fifty in use. A brief description of this system may be of interest.

The two ends of the block, varying in length from three to five miles, are connected by an overhead single grounded wire. The machine is wired with two circuits, one through a magneto bell to earth, which is the normal position—the other controls a locking arrangement which prevents the semaphore signal being moved without the co-operation of signalmen at both ends of block. The movement is made by the signalman desiring to pass a train through the block, which station call A, signalling to other end of the block by magneto to unlock A's semaphore lever, in doing which B assumes responsibility of the track being clear at his end, which he is not likely to do unless it is clear. If the track is clear, he turns the switch, throwing the current from his battery on to the wire which energizes relay at A, releasing the lock of semaphore lever. This movement of the switch at B locks his switch, so he cannot make another movement until the train passes through the block and over a track box at B, releasing the switch. The switch when locked breaks the circuit, so that A could not unlock B's semaphore, even if he were asked to do so, while the train is moving from A to B. While the semaphore signal is set in clear position a telltale bell continues to ring until the signal is set back to danger, calling the signalman's attention to the position of the signal. The magneto signals can be made at all times and are used to report a train entering block, clear of block, etc., instead of using the telegraph line for such reports.

On the Chesapeake and Ohio road the machines are operated by the telegraph operators, although the signalman does not necessarily have to be a telegrapher, and being coupled to regular signal levers require no extra work.

They are economical as to first cost and in maintenance, the batteries being in use for such short periods that they last from eighteen to twenty months. Our telegraph linemen look after telegraph and signal wires on about ninety miles of road and twenty-five to thirty machines. The parts being very simple, there is seldom any failure, and if one occurs it is generally found in the battery, caused by a broken jar or rusted connection; and what we think is a good thing is that an operator or signalman knows whether or not the apparatus is in working order, whereas with automatic signals the train coming to signal at danger cannot be sure if it is by reason of a train being on the block or because the apparatus is not in working order, they being arranged to show danger signal when train is in block or when circuit is out of order. The trainmen like our system, feeling sure when they get a clear signal that the block is clear. Our officials feel that the system is a great safeguard in moving trains. It is conceded that there has never been an accident that could be charged to the machines since their installation some four or five years ago, and that they have prevented accidents that would probably have occurred without them.

We have three or four blocks equipped with the staff system. This is a very safe method, though its first cost is considerable. It is also a manual controlled system, requiring co-operation of signalmen at both ends of the block, and the stations are connected by an overhead wire. Each machine has a number of staffs locked in. To pass a train through a block, signalman at A asks B to unlock the machine so he can get staff (which is a key). After one staff has been taken out, another staff cannot be gotten out of the machine at either end, owing to the direction of the current being changed in removing the staff; after taking the staff out of the machine and using it to clear signals it is given to the train to carry to the other end of the block and deliver to signalman, who puts it in the machine, changing the direction of the current again and making the two machines work in harmony, thus allowing another movement of trains to be made.

Automatic signals seem to be generally used on double track roads. On such roads with heavy traffic and short blocks, the conditions are good for such system, and I understand that in practice the system is used mainly for spacing trains, the rule being for trains to wait at the block signal, if it shows danger, from two to five minutes, and then proceed. I read of a discussion as to whether it was necessary for trains to wait any time or proceed at once after observing that the signal showed danger. This system I do not think recommends itself for single track blocking, which should be absolute.

I have not had much experience with bonded track circuits, but what I have had leads me to be-

*Report read at the Convention of Railway Telegraph Superintendents at Detroit, Mich., June 20-22, 1900.

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lieve they are expensive to maintain in satisfactory condition, consequently my preference is for a system of blocking connected by overhead wires.

Telegraphing and Telephoning Simultaneously.

The Rysselberge system of telegraphing and telephoning simultaneously over a single wire is meeting with considerable success in Germany, according to the Scientific American, the Berlin fire brigade being equipped with it.

There are fifteen brigade stations in Berlin, each of which is served by a special network of fire alarms. From these stations underground wires radiate in all directions, each wire being connected with a great number of alarm pillars. The alarms are arranged for automatic working, and to each is fitted a key for telegraphing to the station. As it is, however, a very great advantage to be able to maintain during the progress of the fire a good connection between the alarm pillars nearest the fire and the brigade station, exhaustive trials have been made with a specially adapted telephone which have resulted in the general introduction of the same. To the Morse apparatus at the station a stand is attached, from which a microtelephone fitted with a battery switch and a second receiver are suspended. The remaining apparatus is inclosed in a flat box and placed under the table. This box contains an induction coil, a condenser, and a circuit key. As it would be expensive to equip each of the fire-alarm posts with telephone apparatus, a portable set is used, which may be attached to the posts by means of a plug and socket provided for the purpose. Such a portable set is carried by each of the brigade carts, there being some eighty now in use. The brigade's cycles are also equipped with sets which are very compact in design. Experience with the system has shown that the switching in of the telephone apparatus in no way influences the telegraph service. During simultaneous telegraphing and telephoning a slight knocking is perceptible in the telephone, which, however, does not destroy the audibility.

Business Notice.

The Montauk Multiphase Cable Co., of New York, lately secured the handsome contract to install their system of fire protection on the new piers and terminals of the North German Lloyd Steamship Company to be built in Hoboken, N. J., when last June its property was destroyed by fire. The plans call for the erection of a substantial structure 850 feet long facing the river, besides additional buildings, each considerably over 800 feet in length, covering the three piers that are to be built outward from the first named construction. The precautions to be taken against fire will be most elaborate, the specifications calling for the complete equipment of the entire property with the fire detecting wire of the Montauk Multiphase Cable Company. Besides permanent installations, the permanent and portable reels have also been adopted for distributing the wires over merchandise on the docks.

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The World's Queerest Line of Telegraph.

Up in Alaska men are at work putting up the most extraordinary telegraph line in the world. It is a line designed to connect the Cape Nome-St. Michael cable with the various mining camps up the Yukon River. There is no timber in the country through which this telegraph line will pass, and steel poles have to be used. Also there is no earth in which to set the poles. The country is largely tundra land, covered with moss, but it is necessary only to dig down a little way through the moss and one comes to the eternal ice which never melts. A hole is cut in this ice, the pole is imbedded in it, and water poured into the hole. The water quickly freezes, thus firmly fixing the pole in position, where it will remain for untold years if not disturbed, for the new ice takes on the character of the old and never-melting ice in which it has been formed. Winter was chosen for the setting of the poles and stringing of the wires because the snow gives good sleighing facilities and the cold is necessary to the formation of the ice-sockets in which the poles are set.

People of less ingenuity and perseverance than the Yankees would have given up the attempt to build a telegraph line across this country when it was found that there was no earth in which to set the poles, but the Americans decided upon the ice setting almost as a matter of course, and did not seem to think they were doing anything especially brilliant. This line is being built by the Government.

The laying of the cable across Norton's Sound was itself an example of the resourcefulness of the American. The cable steamer Orizaba ran aground soon after leaving St. Michael, but there was no thought of giving up the job on that account.

George F. Porter, who was with the expedition, tells in the Electrical Review of the manner in which they overcame such a mere incident as the wreck of the cable steamer. He says: "The ship rested easily, but it did not take more than a hasty examination to show that she was badly damaged. The question then was to save the cable and, if it was humanly possible, to lay it anyhow. A lighter was secured and a small ocean-going paddle-wheel steamboat to tow it, and the cable was pulled out of the hold and coiled on the lighter's deck, the weather, for a marvel, holding good all the time. The lighter was rigged up with a small jockey block on the end of a beam from its short mast, and through this the cable was passed. Luckily we had enough cable, for the combination of paddle-wheel steamboat and lighter steered somewhat irregularly, and the cable now lies at the bottom of Norton Sound in a sinuous line, far different from the straight course that it would have had had the ill-fated Orizaba not perished on the reef. However, the cable is laid and is now in operation. The work being finished, we had to take what transportation we could get, and our party finally secured quarters aboard a tramp steamship, at that time doing a thriving passenger business between Alaska and American points. The journey back in that ship was something good to

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look back upon as an experience, but bitterly disagreeable while it lasted. Provisions were very short, and a strange vessel had to be stopped in the solitudes of the Pacific Ocean to supply us with food. The water on board the ship, if boiled and mixed with vinegar, could be drunk by a man if he was very thirsty. Among the other supplies that we received from the friendly vessel that came to our assistance was a case of Apollinaris water, for which the demand was so strong that it retailed at $6 a quart bottle. We found out, however, that when it rained, as it frequently did, we could hold, three of us, a rubber coat with the sleeves turned wrong side outwards, one man holding the lower end of the sleeve, and thus painfully gather a sleeveful of water; this we bottled in the empty Apollinaris bottles, and in this manner managed to slake our thirst somewhat until we reached Seattle. We were comforted, though, even in this unpleasant passage, by the knowledge that we arrived at Seattle with the Cape Nome cable in good working order, despite the continued series of accidents that threatened to prevent its installation."

News Gathering.

Melville E. Stone, general manager of The Associated Press, was tendered a reception and banquet at the Algonquin Club, Boston, on Tuesday evening, December 4, and during the post prandial exercises he entertained the members and guests with a "talk" on the evolution and growth of The Associated Press and of similar organizations throughout the world.

General Charles H. Taylor, after some felicitous remarks anent the struggles of the guest and himself in their early days in the newspaper business and later in competition with each other, introduced Mr. Stone, who was given three cheers and a tiger.

Mr. Stone began his "'shop talk," as he called it, with a brief resume of what printing and newspapers had done for civilization from the fifteenth century to the beginning of the nineteenth.

It was between 1835 and 1845, he said, that the newspaper business in the United States entered its renaissance period, and since then the great era of intercommunication by steam and telegraph has brought the newspaper business to its present perfection, and has made of The Associated Press such an important agent in the newspaper world.

About 1835 the elder James Gordon Bennett started his paper in New York, followed by the Sun and the Tribune, and from the office of the Sun three young men started south to organize—one a paper in Philadelphia, another in Baltimore and the third in Charleston.

The newspaper of to-day was born in that period, largely because of the removal of the tax on paper and the invention of the cylinder press by Robert Hoe, added to the tremendous personal energy of the three men who started papers in New York during the period.

Two of these men were fathers of different types of journalism, and one of these types is fast passing out of existence, while the other is moving on. James Gordon Bennett was the apostle of the great modern newspaper which aims to give all the news possible, and Horace Greeley was the apostle of public opinion only—he aimed to lead and guide public opinion in his paper. It had its day, was powerful and did good, but that kind of journalism, which aimed to mold public opinion, has passed away.

Bennett held that the highest purpose of a newspaper was to give the news, and early in his career he made arrangements to meet the incoming steamers and get the foreign news from them into his paper as quickly as possible. He aimed to give truthful information on all current events.

He employed a series of post roads before the era of the telegraph, and got his news from Washington in this way. Later other New York papers adopted the same plan, and this finally led to an arrangement by which this news should be sent though one channel for a number of the New York papers.

This was the birth of The Associated Press idea. This preliminary organization exchanged the routine news from Washington and elsewhere with papers in other localities on consideration that these papers should in return supply local news from their localities.

Later this principle was worked over a large territory, and the New York association charged a money bonus in addition to the news exchanged.

The invention of the telegraph made possible the further extension and perfection of this idea, and after a period of travail, during which there were a number of associations conflicting one with the other and fighting each other, The Associated Press of to-day, which practically includes all the papers of any consequence in the entire country, was born.

Mr. Stone then described at some length the methods by which the news of the country is gathered through The Associated Press and its agents, showing more particularly how in the United States the representatives of the organization have access to all the newspapers connected therewith, and consequently are able to get the news fresh and wire it to the different points all over the country, thus furnishing the editors of all papers a budget of the important news of the day as far as this country is concerned.

He then showed how the foreign news is gleaned through independent European agencies established by The Associated Press at principal points and through arrangements with the principal foreign agencies. To emphasize the perfection of this system he pointed to the reports of the Dreyfus trial each day and other foreign matters of recent interest.

He explained the difficulties The Associated Press had to contend with during the Spanish-American war and up to the destruction of Cervera's fleet. He eulogized the work of the war correspondents engaged during that war, many of whom, he said, did work which outrivaled the bravest work done by the soldiers on the field of battle.

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He concluded his remarks with the hope that the day was fast dawning when the little tattle of life would receive less attention in the newspapers and when the higher and better things which enter into the history of the world will become the real news.

The System of the National Magneto-Electric Telegraph Company.

In Room 704, Park Row Building, New York city, there are on exhibition instruments illustrating a new system for transmitting signals of all kinds, including telegraphing by the Morse code. Briefly, the system consists in the use of induced currents of high potential, generated by a modified form of a magneto, and were we to stop here, all telegraph men would smile and say "Ancient as the hills."

Many inventors have, during the past forty years, endeavored to invent some way of utilizing the known high potential that may be generated by means of a magneto, so as to put it into practical use in the art of telegraphy, but they have all failed, primarily for the reason that none of them ever thought of taking advantage of the inductive effect gained by suddenly bringing the rotating part, or armature, to a standstill at the proper point in its revolution where the high inductive effect of the sudden discharge of the armature coil could be obtained. Mr. L. G. Wooley, an old-time telegrapher, seems to have solved this problem in a manner so simple and effective that it causes the visitor to rub his eyes and ask if he is dreaming.

The particular instrument of most importance to our friends interested in telegraphy is the simple telegraphic instrument shown, which is capable of transmitting the characters of the Morse code with perfect accuracy, through a line, with resistance introduced sufficient to make the whole equivalent to a resistance of 12,000 ohms. This instrument consists of a series of magnets, provided with suitable pole pieces, between which a small armature wound with very fine wire is made to revolve by means of spring mechanism at a very high rate of speed for one-half a revolution, when it is suddenly checked by means of a lug on the end of the armature coming in contact with a shoulder in a slotted key, this movement being caused by the depression of the key, and a like movement is produced when the key is released; thus, one can transmit the ordinary dot and dash of the Morse code with the same facility as with the ordinary telegraph instrument.

Wherein this system differs from all others heretofore attempted is in the creation of very high potentials on both the up and down stroke, and by means of which batteries, or heavy dynamic currents, may be eliminated, and at the same time this system permits of telegraphing long distances without any relay or repeating device.

Should this device prove as successful in practical operation as there is every indication that it will, it will not only prove a boon to the practical telegrapher, but will doubtless effect a large financial saving to the companies employing this system.

One great beauty of this system is that its instruments, inasmuch as they have no contact points to be corroded and eaten away by the making and breaking of the current, are always ready for action. The practical telegrapher will fully appreciate what this means.

This same principle is, as may be readily seen, applicable to all other forms of transmitting signals, and the company have on exhibition a complete fire alarm telegraph system, as also a very ingenious device for automatically testing the circuit for breaks at intervals of every two and one-half minutes, which may be made, however, as often as desired. This tester can be used on all kinds of circuits, telegraph, telephone, fire alarm, and in fact any system of wires whose continuity at all times it is desirable to preserve.

The system is so extremely simple that it seems remarkable that its discovery should have been deferred to the very closing years of the nineteenth century.

The Metric System in Congress.

Now that the House Committee in charge of the bill to substitute the metric system in place of our present system of weights and measures has decided to make a favorable report, the chances of our having to think and talk in terms of meters and kilogrammes become very real. The arguments in favor of the metric system are so many, so reasonable, and so well known, that it is not necessary to reiterate them now. Apart from the saving of time and labor among ourselves, there is the commercial advantage which will be gained by abolishing a system of weights and measures which seriously hampers us in our trade with almost all the foreign nations, and particularly with the Latin-American republics. The English-speaking races stand alone in the use of the old and largely discredited system; and although these races are far in the lead in manufacture and commerce, and have the power, if they wish, to perpetuate for many a decade to come a confessedly clumsy and antiquated system, every argument of utility and convenience calls for the substitution of a decimal system, which, by long use, has proved its all-round superiority.

It is scarcely likely, however, that such a change will be made during the present Congress, and the probability of the bill's becoming a law would be greatly increased if the other great branch of the English-speaking race could be induced to make the change simultaneously with this country. The agitation in favor of the metric system is as strong, possibly stronger, in Great Britain than it is here, and in view of the close trade relations and the enormous volume of business between the two countries, it is well worth considering whether an attempt at concerted, or rather simultaneous, adoption of the metric system would not be advisable.—Scientific American.

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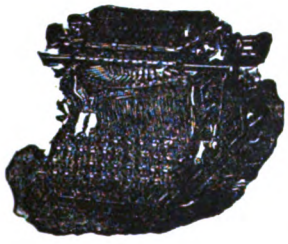
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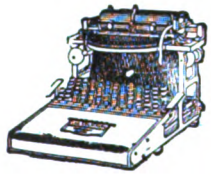


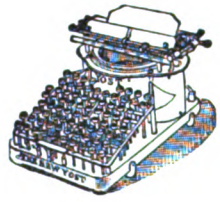
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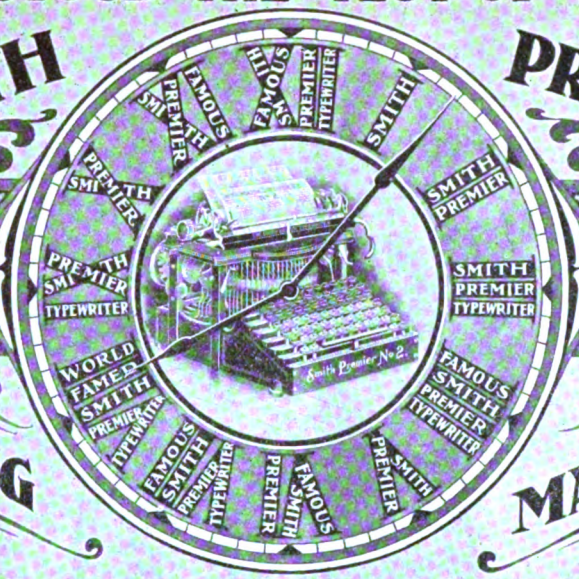
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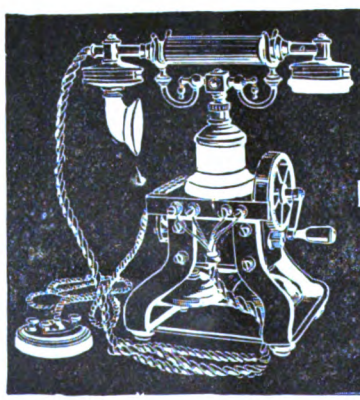
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NEW YORK, January 1, 1901.

As to 1901.

With this issue of TELEGRAPH AGE a new year, the first of a new century, opens. It is fitting on so auspicious an occasion that we should extend a cordial greeting to our friends everywhere and wish them, each one, a Happy New Year. We do this the more heartily, for, looking back over the successes of the year just closed, the promises are abundant that the year to come has even more in store in the way of business advancement and of material prosperity for all.

While thanking our agents for all benefits secured by them during 1900, and to whose personal good will and activities in our behalf this paper makes grateful acknowledgment, for large gains have been made, we wish to say that, not content with the achievements of the past, we expect to make 1901 distinctively a record year in circulation building. Never in the history of this paper has so much good matter been printed in its columns as now regularly appears. It is of a character not only to interest the reader simply, but is in a high degree of a positive and instructive value to him, providing just the material that will best aid him in his chosen profession. We believe that no operator in this broad land, no matter what his relative position may be, can keep well informed as to his calling, whether regarding its methods, its appliances or its opportunities, without reading TELEGRAPH AGE. It is a telegraphic paper, conducted by telegraphists and designed for telegraph people. This is the theory of its publication, and working along these lines our agents at every point are urged to push its interests.

At this time of year many thousands of subscriptions are expiring. It is desirable that these should be promptly renewed, and the hope is expressed that agents will take active measures to secure all of these renewals during the month of January. This will leave the remainder of the year more clear comparatively to carry out vigorously the programme of securing new subscriptions. There are many names on our books, subscribers of years' standing, who would regret losing a single issue of the paper, whose subscriptions should not be allowed to lapse. Yet if agents, to whom many of these names are charged, are not prompt in obtaining renewals, it can hardly be expected that the responsibility of continuing a paper to any address longer than the time paid for should rest upon us. In some well known cases we might be willing to do this, but when the total of such subscriptions runs up into the thousands, it will readily be seen that we cannot continue such a large number of names without the proper authority to do so. We urge upon our agents, therefore, to promptly close these accounts during January and to make this a year of aggressive and constant activity on their part. TELEGRAPH AGE should easily find many individual subscribers in every telegraph office in the United States. This is the aim of this paper, and its general policy and proved friendship for the operator during a period of eighteen years has been such as should secure to it, through the help of its friends, the full extent and fruition of its ambition.

For Congressional Action.

Now that Congress is in session there are some measures that should receive from that body both favorable and final action, making the year 1901 a memorable one in the annals of telegraph legislation. President McKinley in his late message to Congress renewed his recommendation for the laying of an American cable across the Pacific Ocean to connect with our new possessions of the Hawaiian and the Philippine Islands, as well as at other points, urging the question upon the attention of Congress.

This is a proposition of the first importance, regarded from every point of view. We are aware that Congress has a divided opinion on this subject, but all differences of opinion concerning such a vitally important measure should be speedily adjusted and harmonized. The urgent need this country has of telegraphic communication across the Pacific by means of an American cable should be considered and acted upon from patriotic motives, and at the dictation of a broad, enlightened and non-partisan judgment.

Whether the cable should be laid by the Government or by private enterprise, or whether it should be of domestic or of foreign manufacture, are issues of comparatively minor consequence. A compromise looking to the settlement of these questions should be effected, and the welfare of the country at large, both in its Governmental and commercial aspects, should be the controlling impulse in the premises.

Another matter that should also receive the earnest attention of Congress is the question of granting pensions to the members of the United States Military Telegraph Corps, some of whom, in the small remnant that still survive, are in need of this assistance. This body of gallant telegraph men in blue rendered peculiar and highly important

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service to the Government during the Civil War. The conditions under which they served, because of its secret character, called not only for expert knowledge and cool courage, but for the strictest fidelity, for the fate of many expeditions, both within the lines of our own armies as well as those of the enemy, was frequently determined by their quick witted action.

The country has been generous to its soldiers, but in all these years no financial recognition has been accorded to those who deserve equally well of their Government for loyal service performed.

President Lincoln, Secretary of War Stanton, and almost every general in the field bore witness to the faithfulness of these men, of which they all had more or less personal knowledge, and warmly approved pension measures looking to their relief. The favorable action of Congress at this time in behalf of the United States Military Telegraph Corps will be a tardy recognition of valuable services bravely performed at a time when the nation was in sore distress.

The Telegraph at the Paris Exhibition.

The successful universal exhibitions that have been held in Paris since the year 1878 may not inappropriately be regarded as milestones along the road of progress in telegraphic industries, for each in its time has not only afforded unrivalled opportunities for the study of new work, but collectively they offer conclusive evidence of the value of the various discoveries or fresh departures that have been made from time to time in various fields of research, and the degree of success that has been achieved by past inventors and workers may usefully be laid to heart by those engaged in similar efforts at the present moment. Thus, for example, glancing back at the reports of the Paris Exhibition of 1878, there will be found in the list of telegraphic exhibits the Hughes type-printing, the Baudot Multiple, the Duplex, the Quadruplex, the Wheatstone and other systems which have achieved permanent success, as is forcibly illustrated by the state telegraphic exhibits of working apparatus in the 1900 exhibition, in which they all appear as instruments in daily use. On the other hand, many apparently promising inventions which were prominent in the 1878 and in successive exhibitions have either dropped out of sight altogether or are still in the course of development—so far, at all events, as actual practical use is concerned.

Among the telegraph exhibits at the Paris Exhibition, just ceased, was that of the Rowland Telegraphic Company, of Baltimore, Md., of the multiplex type of working which will admit of eight messages being sent simultaneously, four in each direction. The apparatus was at work in the exhibition.

The Rowland apparatus has the following characteristics: Messages are transmitted from several sets of keyboards of the typewriting character, and any typewriting clerk should, with a little practice, be able to manipulate them. The messages are received on instruments which print them in ordinary type on a long roll of paper, which is perforated at convenient intervals to facilitate division when the received messages are printed.

Monsieur Ernest Mercardier, of Paris, exhibited his multiple telegraph system, in which it is said that twenty-four messages can be simultaneously transmitted over one circuit, twelve in each direction. It is based on the harmonic system of telegraphy, one form of which was devised by Elisha Gray many years ago. Mercardier's method, however, is not a copy of Gray's, as by the use of telephone receivers and transmitters combined in various ways he has designed an absolutely independent method. Harmonic telegraphy depends on the fact that if a number of vibrating reeds, each differing by a certain defined period, say of a musical note, be so connected that each in the course of its vibrations causes a series of currents to be sent into a line wire, the resulting current so formed consists of a series of irregular but well-defined curves, which are due to the combination of the whole series of vibrations emitted by the different reeds, just as in a musical note the sound curve is not a simple one, but is that due to the fundamental note on which are superimposed the overtones. At first sight it would appear as though it would be impossible to dissect the combined current curves, due to the superimposed currents, into their initial undulations. In practice, however, if each of the receiving reeds or telephones, joined up at the receiving end, be tuned to exactly the same pitch as its corresponding transmitting reed at the far end, the receiving reed will respond to the current of the corresponding transmitting reed and to no other, and even though the whole of the transmitting reeds are worked simultaneously, each being used for sending separate Morse characters, the respective receiving reeds select the Morse characters of the right note and disregard all others.

As transmitters, Mercardier uses electrical vibrating reeds of a well-known character, and as receivers he uses a combination of a telephone and a microphone, the latter sending out a powerful series of undulations into the local circuit, these undulations being selected by suitably designed telephones, which only respond to the vibrations to which they are tuned. The method, therefore, is a Morse method pure and simple, in which, so far as the operating is concerned, the telegraphist uses a Morse key for signalling, and the receiving telegraphist uses telephones as sounders.

This system requires a metallic circuit for thoroughly satisfactory working.

MAGNETIC CLUB.—The annual business meeting of the Magnetic Club will be held in Room 60, 195 Broadway, New York City, on Thursday, January 10, 1901, at 5 o'clock P. M., for the election of officers for the year 1901 and of four members of the governing committee to serve for two years; and for the consideration of such other business as may come before the meeting.

PORTO RICAN TELEGRAPHS.—General Greely, Chief Signal Officer United States Army, has been informed that the Signal Corps telegraph lines in Porto Rico have been turned over to the control of the civil authorities of the island.

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One More Old Timer Gone.

M. L. WOOD.

Died at his residence, Kirkwood, Florida, November 21, 1900, aged 81 years. The ominous "30" registers a loss to the quite rapidly receding list, of one of the finest operators of that entire number. An athlete in strength and vigor, and entering the service at thirty years of age, a protege of Hon. Ezra Cornell, of early telegraphic, but later university fame, he was well fitted to assist conspicuously in working out the difficult early problems of the frail copper wire, the mud insulator, and the cotton wound relay magnets, of every grade of resistance, and vying, in the same circuit, to destroy all possible of the small current, expensively furnished from platinum and quicksilver. These magnets were of about 24 lbs. weight each, mainly of No. 16 copper wire.

The poverty of the service of that day when he



THE LATE M. L. WOOD.

entered it, can hardly be described; scarcely imagined. The inefficiency of the receiving magnets, greatly intensified the difficulties of the five hundred miles circuits, that year first attempted to be worked. Not a wire yet west of Buffalo, N. Y., nor east of Boston, Mass., and scarcely a lateral feeder, the incipient telegraph, when he came with it, was serving a staid eastern population, which failed to conduce to great necessities, a sufficiency of earnings, by patronage.

Almost the first lateral line of the world had naturally come at the Cornell hands to Ithaca, N. Y., the Cornell home. Mr. M. L. Wood was placed a pupil in that office under the able instructorship of Hon. James Eddy, who a few months later was invited to the superintendency of the American Telegraph Company, reaching eastward toward a yet unborn and unsuggested Atlantic cable, and where Eddy laid down his frail life, all too early.

Right here, and with Mr. M. L. Wood's first year in the service (late '46 and early '47), came an element into it which not only promised, but brought greatly accelerated earnings to the new system. It called for more enduring men, and he was put forward, and into the breach, as one of required physique. It was the very year of the then greatest flour and grain speculation of the western world, down to that day; taking the root of its necessity, of course, from the eastern continent. Even the best light of electric intelligence was not reaching forward fast enough to answer the demands of that day. There were ocean steamers plying between the great corn market centers of Europe, and Halifax and Boston, even then, but they were too slow for the fortune hunters of New York city and the West.

To satisfy these urgent interests the telegraph lines were being pushed forward from Boston to Halifax. Construction work had been completed as far as Portland, Me., leaving a gap between that point and Halifax, N. S. In order to transmit the foreign news taken from the steamers at Halifax to Portland, gave rise to the adoption of a system of signaling across the wild and rugged country, abounding with wild beasts, separating the two cities. This signal service was established in advance even of Gen. Butterfield's pony express, and consisted of a showing of colored signal lights displayed from hilltop to hilltop. Mr. Wood's station on this signaling line, was on the famous peak known as "Blue Hill."

The arch enemy of that region was so largely in evidence, the ever present army of hungry wolves, that constantly threatened the rude camp, and dogged the heel of the adventurers, that never less than two men, with blazing pine torches, were trusted to cover the several miles down from these peaks, to even the rudest civilization. The system of signaling had to be worked mainly at night, and the weary tramp just before day, to reach civilization, now and then witnessed an attack, within striking distance of them. This method of transmitting news served its purpose well, but receded speedily with the advancing telegraph.

Mr. M. L. Wood was born near the village of Dryden, a few miles only from Ithaca, N. Y., September, 1819, the brother (slightly younger) of Mrs. Ezra Cornell. Hanging in the office of the youngest of that trio of brothers, Orrin S., Merritt L., and Otis E. Wood, where the last named is still doing business actively, is a testimonial to the deceased, from that genial gentleman, Prof. S. F. B. Morse. It also sets off, in a marked degree, characteristics of the loveliness of the Morse character. Addressed to them as three of the superintendents of the principal lines of that early day, he says: "Most happy shall I be, if, by a simple letter of mine, I can render you worthy brothers any service." After many other pleasant words, he closes with: "Sincerely your friend and servant." The last two of those warmly expressed words, are never added, except by the truly polite gentleman. Few, except the old timers, enjoyed a pleasantry of Morse, often seen then, never seen now. He was an artist. He had an aptness of pen sketch: and he was a telegraphic "dead head." When his free message was

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presented at an office window, it most usually had affixed, under his artistic signature, the horrid skull and cross bones, as the price it proposed to pay. Mr. Wood had a jolly nature, and when it rubbed against Prof. Morse, a warmth of feeling and fun ever came.

On those occasions it always brought out the relation of the Morse practical jokes, he always loved to play, only one of which, an old timer's obituary will permit us to give.

Measured by Mr. Wood's years from 30 to 80, fifty years, it does not seem to mean so long a time, as does this Morse joke well illustrate where the world really stood, when the old timers came. An earlier Silliman occupied the Chair of Chemistry and Philosophy at Yale. He was the confidential friend and adviser of Morse, in those early bringing out days. They were as different as men could be. The former was entirely sure that nothing ever had existed; aye, more, or ever would exist, unless it could be proven. Morse was restful under it, not liking to be thought a lunatic, wholly irreverent, or quite blasphemous in his ambitions; but he meant to pay Silliman, some day and in some way, for his temerity in not encouraging Morse that his invention would surely become practical, and enter into daily life. Christmas eve, in the middle forties, first after the line from New York, on its way to Boston, reached New Haven (but Silliman had neglected to pay it the proper respect of first class curiosity) Morse planned a merciless revenge. That indomitable messenger boy, George E. Shepard, who died, as many old timers will remember, worked to death on the Erie Railway, was on duty at New Haven. Morse always loved the twinkle of his eye, because he knew George saw it, when one twinkle of Morse's eye assured him something "smart" was on. George was to report early, before daylight, carry a carefully prepared over-night message of Christmas congratulations from Morse, New York, to Silliman; get into the house before Silliman should get to his breakfast, and to his work; because, as he was so inveterate a worker, he was not the best respecter of his holidays. George was instructed to carry his tongue and his ears with him, tell all he knew if Silliman raised a question, and take in carefully every word he might say, and return quickly, and report it to the office. Silliman, before light, answered the venerable "door knocker" in his dressing gown, disclosing to the august personage an undersized stout boy, with hat in one hand, and a letter in his extended other hand, with the polite salutation: "Good morning, awful cold, sir." "It brought the remark George aimed at: "Come in, lad." Sleepily, dreamily, Silliman clumsily opened the letter, read, and re-read, while George absently, but with every thought on his work, scanned the hall museum of the great man, who scanned the message, with the inquiring words: "But I don't understand this." Making the best of his opportunity, George explained that of which Yale had never yet heard (but those handling it had come to style it) that it was a "telegraph dispatch." Silliman's incredulity, as was its wont, seized the great chemist, and while he plunged more into its comprehension, he uttered: "But I don't understand this; it is not Professor Morse's signature." George, not only knowing it was no use to banter with the great man of Yale, but also, that he had been loaded with just what he was sent after, retreated musingly, with "good morning, sir," but ran every step of the way to the office, with his laughing report, "I nailed him."

Morse, to his latest breath, told this joke, every time he thought of it, usually accompanying his hearty laugh, with: "This settled all the differences between dear old Silliman and myself."

Scientific men stood aghast at the embarrassment of Silliman.

In the death of Mr. Wood we are reminded that the old timers reached back with Morse, as the sole connecting link between Silliman and Franklin.

A little later, while the clouds of earlier competition were merging into consolidation, Mr. Wood retired from the telegraph for a few years, purchasing the great warehousing grain and lumber business of Williams Brothers and H. W. Sage, at West Ithaca. Selling the same finally to Hon. W. W. Esty, he re-entered the telegraph work for which he was so admirably equipped, as general superintendent of the United States Telegraph Company, and later of the Atlantic and Pacific Telegraph Company, for many years; leaving these for the superintendency of the Ithaca and Cortland Railway.

Like the many old timers of those great trials, but greater successes, we almost envy him, and them, their companionships with those great souled men, who, in their lovely lives, paid their money and their labors unsparingly to spread light among their fellows, and throughout the world, Morse, Sibley, Faxton, Cornell, and a dozen more like them; but who, in their loveliér deaths, bequeathed their fortunes in farther reaching effort, to more easily and more rapidly diffuse every intelligence, not only to present, but to future generations forever. To another distinguished and lamented old timer, we say: "Enter ye into the joys." We drop a tear of sympathy that the former, almost the strongest man of his time, laid down mortal life with five invalid years from unrelenting rheumatism.

The Alphabetical Society.

A correspondent wishes to know what the Telegraphic Alphabetical Association of New York represents. The Telegraphic Alphabetical Society is composed of Western Union officials who semi-occasionally take a summer outing or have a winter dinner served in some quiet corner at Delmonico's or Sherry's. As the members never could agree upon a name, the Society is known as the T. S. F. T. A. O. T. C. O. T. O. A. E. O. T. W. U. T. C., which, when interpreted, means, "The Society for the Amelioration of the Condition of the Officers and Employees of the Western Union Telegraph Company."

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England's Poor Telegraph System.

London, Nov. 17.—For several years past the newspapers of this country and the entire commercial community have been engaged in an unsuccessful endeavor to bring about much-needed reforms in the administration and working of the public telegraph service. Over thirty years have elapsed since the state purchased from about half a dozen different and competing private corporations the then existing telegraph systems. The act of Parliament authorizing the purchase and providing the necessary funds also gave the state a monopoly of electrical communication and placed the administration of the telegraphs in the hands of the Post Office. The deal was universally applauded, for the newspapers had been bribed by the concession of a very cheap rate for press despatches and the rest of the community were led to believe that the telegraph would soon be made comparatively as cheap and well managed as the penny post. Eleven years elapsed, however, before the cost of telegraphing was reduced for the ordinary citizen, and practical telegraph men were so tightly bound by red tape that little progress in other directions was made. When the telephone was introduced into this country from the United States it was fiercely attacked by the Post Office bureaucrats in the belief that it would supersede the telegraph. Ultimately, after costly law suits, the courts decided that the telephone came within the terms of the act of Parliament and could not therefore be used here without the consent and authorization of Her Majesty's Postmaster-General. The postal men who controlled the telegraph had neither the courage nor the foresight to buy up the American patents, lock, stock and barrel, and go into the telephone business themselves. They therefore issued licenses to private corporations and hedged them round with such manifold restrictions that enterprise was crushed and the telephone system of the United Kingdom became a by-word among the nations. Six years ago the Post Office Rip Van Winkles awoke from their slumbers and again appealed to Parliament to help them. Parliament dutifully passed an act by means of which the Post Office people received funds with which to buy the trunk lines of private corporations, who thenceforward were to be restricted to local exchange business, an arrangement which suited them very well indeed. They obtained for their trunk lines a price about three times their intrinsic value, and they cheerfully accepted the profitable local traffic and gave the Post Office the unprofitable trunk line work. Three years later the Rip Van Winkles again rubbed their eyes and after looking around saw things which displeased them. They asked and obtained Parliamentary powers and funds with which to compete actively with the private corporations, or rather with the one corporation—the National Telephone Company—which had survived the stress of unfair government interference. As might have been expected, the result of all this muddling, vacillation and inaptitude is that this country has the worst telephone system in the whole world. The telephone has not even yet entered into the daily business life of the British people; it is still a luxury, and bids fair to remain so for long years to come.

While the Post Office bureaucrats were thus engaged in the congenial occupation of strangling private enterprise in the telephone business and, incidentally, in the district messenger and tape ticker businesses, they allowed their own telegraph business to go to the dogs. The system grew steadily worse until to-day the state of telegraphic affairs is absolutely unbearable. In 1896 it became evident that a retrograde policy had been deliberately decided upon and enforced, but it was not until three years later that proof was given to the world by the Telegraph Chronicle, the organ of the telegraphers of the United Kingdom. By some means, which a special departmental committee failed to discover, this enterprising paper obtained and published the confidential report of a secret commission which was appointed in 1895 for the purpose of ascertaining how money could be saved in the administration of the telegraphs. The commission deliberately reported in favor of economy before efficiency. Controlling officers were warned that money must be saved at all costs, and departmental protection was promised in the event, certain of course to happen, of increased delay in transmission consequent upon the saving of pence. They were urged to give scant consideration to newspaper despatches, and the golden rule laid down for their guidance was that a minimum staff should be kept for maximum requirements.

Needless to say the telegraph service was utterly demoralized by these recommendations. Errors and delays became the rule instead of the exception. To-day it is nothing unusual for a press despatch of less than a hundred words to occupy three to four hours in transmission, say, from London to Dublin, private messages of twelve words very rarely obtain delivery within an hour of handing in, and in London it takes twice as long to send a message from one part of the city to another, a few miles, than it does to telegraph 500 miles to the north of Scotland. The publication of the confidential report of the secret commission roused the newspaper people to action. They waited in deputation upon the newly appointed Postmaster-General, the Marquis of Londonderry, and heard the soft words which proverbially butter no parsnips. To-day, however, it is announced officially that a new post has been created, that of "manager of telegraphic traffic," and that two experienced telegraphers, E. Trenam, of Manchester, and T. Mason, of London, have been appointed joint managers. Both men have risen from the rank of operators. Mr. Mason has long been manager of the "Special Arrangements Branch," and Mr. Trenam has been chief superintendent of the telegraph department at Manchester. If these two men could have free hands in the much needed reorganization of the telegraph service they would be able to revolutionize the system.

Practical men agree that what is imperatively required to extricate the Government telegraph service from the slough into which it has been

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allowed to fall is the appointment of a trained telegrapher as "Telegraph Master General" with full powers of control and administration and subject only to the Postmaster-General or to Parliament. Failing that, the only hope of salvation would be a reversion to the system of private competing telegraph corporations which Parliament arbitrarily abolished thirty years ago. There are few thoughtful men in this country now who do not deplore the existence of the Government monopoly in telegraphic and electrical matters. That monopoly has not only given the country an inferior telegraph service and a disgraceful telephone service—it has strangled many promising enterprises and has driven British talent into seeking foreign outlets, with the result that if an electric outfit is required here for railroad or tramway or what not it has to be obtained almost invariably in the United States. Such are the fruits of government monopoly and incompetent administration.—N. Y. Sun.

The Telephone and Train Dispatching.

It was recently announced that the Northern Pacific Railroad Company would substitute the telephone for the telegraph along its line. It is now said, however, that the idea of substituting telephone for telegraph in all of the departments of the road is entirely out of the question, and in the train service department would only be the means of inviting every element of danger which all lines spend thousands of dollars every year to erect safeguards against.

Some few years ago there was a proposition brought up by one of the superintendents of the Northern Pacific to use the wire on the fences along the right-of-way for telephoning, and in this way relieve the telegraph system of a great deal of the business of the traffic department that at present not infrequently congests the wires. Along the right-of-way of the Northern Pacific the greater portion is fenced with wire, and it was the scheme to connect the breaches and make a continuous wire from St. Paul to the coast. However, the matter was dropped, and, it is said, it may be that this scheme has again been revived.

It is also said by officials of the road that the plan as announced to connect each station with the general headquarters by the long-distance telephone, so far as traffic matters are concerned, is practical and would be the means of relieving the wires of much business that at the present time goes over them and could just as well be telephoned. This has been done by a number of the large railroad companies and has been found to give general satisfaction. But in the train department that is another question.

There is no department of a railroad that is more carefully watched than that of the train dispatcher's office. It is a well-known fact that the telephone is by no means a reliable instrument, and particularly in the matter of transmitting numbers. Even what the outside public would probably think a trifling matter might be the means of a very serious wreck. So it is that the road, and, in fact, all lines of railway, pay more attention to the train dispatcher's office than to almost any other part of the system so far as accuracy is concerned. In this department it will never be possible to do away with the telegraph.

On a single track road the length of the Northern Pacific there may be at one time 100 trains moving in both directions. Every one of these is traveling on orders from the train dispatcher's office. He is the one man who knows just where every train is and he is the man who says where every train shall pass and at what time. All trains are run on orders from his office.

When a dispatcher sends out an order it is taken by the receiving operator on a blank furnished by the company. In the taking there must not be an erasure of any kind. When the receiving operator has got the order his first duty is to repeat it to the sender, who checks every letter and figure to see that there is no error, and then signs. When the conductor comes to the office to get the order he must first read it in the presence of the operator before signing it. This is that he may fully understand it, and if not, he will ask regarding it. Then, when he delivers a copy to the engineer, he waits while the engineer reads the order to make sure that he understands it, and then, if all is well, the train pulls out according to instructions.

It will be readily seen what the telephone would mean in matters of such importance as this. It simply is not practical.

S. F. B. Morse's Old Home Sold.

The old home of Prof. Samuel F. B. Morse, the inventor of the telegraph, situated on the old Post Road near Poughkeepsie, N. Y., has been sold by William Morse, one of Prof. Morse's sons, to F. J. Hulst. The furniture in the old house has been disposed of by Mr. Morse to friends in Poughkeepsie, who will treasure it on account of its associations.

Mr. Morse's wife is dead, and his daughter and brother are abroad, and as there was no one in the family who cared to take the old place, he decided to dispose of it. The property is one of the handsomest on the South Road.

SERIAL BUILDING AND LOAN ASSOCIATION.—The old board of the Serial Building, Loan and Saving Institution, of New York, has been renominated without opposition, as follows: D. B. Mitchell, President; E. F. Cummings, Vice-President; Thomas M. Brennan, Treasurer, Edwin F. Howell, Secretary, and J. B. Sabine, A. A. Rich, Attorneys.

Directors: Jno. Brant, T. F. Laing, E. W. H. Cogley, W. J. Quinn, Max Wustrow, F. W. Gregory, W. C. Burton, T. A. Brooks, M. J. O'Leary, Eugene F. Vacheron, T. E. Fleming, M. W. Rayens, H. G. King, G. H. Schnitgen, William Holmes.

Auditors: R. M. Nesbitt, Jas. R. Beard, George Murphy.

Bankers: Mercantile Trust Company, New York.

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Alternating Magnetic Fields as a Therapeutic Agent.

An exceedingly interesting series of experiments has been carried on lately by Mr. John Burry, of 69 Broadway, Brooklyn, upon the effect of alternating fields of magnetic force upon various inflammations and diseases of that class in which pain is caused by failure of the natural circulating and draining functions of the part affected. The apparatus in use is exceedingly simple, consisting of solenoids of a size convenient for the admission of various parts of the body or of the whole body of the patient, and directly actuated by alternating current at a requency of 60 cycles per second. It is claimed that the pain of rheumatism is eliminated in from 10 to 15 minutes and does not return for some time after the use of this apparatus. It is said also to have proved remarkably efficacious in the treatment of writer's and telegrapher's cramp, and very successful in the treatment of toothache when this is caused by diseased conditions of the jaw-bone. Mr. Burry has maintained for some time past, at the address above, what is practically a free hospital in which he has treated a large number of patients for the purpose of acquiring experience and making observations upon the effect of this singular application. While hesitating to express any theory of the action of the apparatus he is firmly convinced that it produces extraordinary activity in the various osmotic and other functions of the cells of the afflicted tissues, and he has had the gratification of producing what are, at least apparently, cures in a number of more or less difficult cases. So far this application does not seem to have been investigated fully by electro-therapeutists or under hospital conditions, but from the various accounts that are received it is at least an interesting, if not a highly useful, application of electricity in the relief of suffering and the cure of disease—From Electrical Review, December 5, 1900.

It will be remembered by our readers that in the TELEGRAPH AGE of December 1, page 507, we stated that Mr. John Burry, who is a telegraph expert, invited operators to try his method of treating writer's cramp at his office 69 Broadway, Brooklyn. We hope that members of the telegraph profession suffering from this cause will avail themselves of Mr. Burry's offer of free treatment.

During the past two months experiments have been conducted at his Brooklyn office on 173 patients suffering from various diseases, all of whom have been benefited or cured.

The friends of Mr. J. B. Taltavall, the publisher of this paper, will be glad to hear that Mr. Burry has undertaken to restore his eyesight. Atrophy of the optic nerve had entirely destroyed the sight of Mr. Taltavall's left eye eighteen months ago, and since that time an heroic fight has been maintained to save his right eye, the sight of which has been gradually failing during the past twelve months.

Although he has only undergone the Burry treatment three weeks, some improvement in his sight is apparent, and he is encouraged to believe that further treatment will permanently restore his vision.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; price, $1, reduced from $1.50.

"AMERICAN TELEGRAPHY," by William Maver, Jr., enlarged and improved; 600 pages; 475 illustrations; clear, lucid and comprehensive in its treatment of the subject, the ranking work of its kind, and of high practical value to every telegrapher; bound in cloth; price, $3.50.

"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume, of which but a few copies of the first edition now remain, presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; price, $5.

"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones, 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

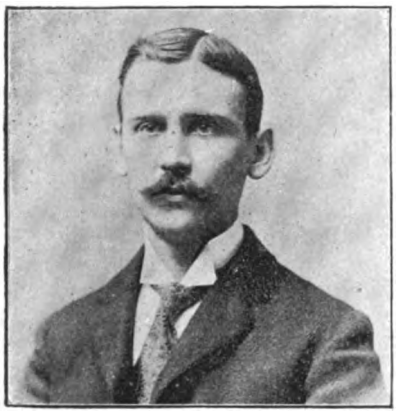
Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

TELEGRAPH COMPANY ORGANIZED.—Articles of incorporation of the Postal Telegraph and Cable Company of Tennessee have been filed at Nashville. The incorporators are Samuel A. Duncan, Elwood H. Bryan, Charles P. Bruch, Andrew P. Martin and Paul O'Connor. The capital stock is fixed at 50,000, and the company proposes to construct under this charter several lines through Tennessee.

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Appointed Assistant Superintendent.

Mr. Charles E. Bagley who was appointed assistant superintendent of the Postal Telegraph-Cable Co., at Boston, Mass., on December 1, was born in that city January 7, 1866. His entry into the telegraph service was in 1881 in his native city, where he has always resided, and where in various capacities he has acquired the telegraph experience that has resulted, at the age of thirty-four,



MR. CHAS. E. BAGLEY,
Asst. Supt. Postal Telegraph-Cable Co., Boston, Mass.

in his promotion from the office of manager of all the Boston Postal offices, which he has held during the last six years, to the position he now occupies.

The Associated Press Not a Trust.

Judge Sherwood, of the Supreme Court of Missouri, on December 17, handed down his decision in the case of the St. Louis Star against The Associated Press, in which he ruled that the latter organization is not a monopoly, and the Star cannot compel it to sell news to the Star.

An alternative writ was issued setting up that The Associated Press was affected with a public interest such as would compel it in law to serve any applicant, and alleging that agreement with its members in St. Louis that it would not serve rival papers without their consent was in violation of what is known as the Sherman anti-trust law, the anti-trust law of Illinois, and the anti-trust law of Missouri.

The Associated Press made return to the alternative writ of mandamus, claiming that it was a mutual organization having for its purpose the collection and exchange of news at cost, and that its organization as a share-holding company was purely for the convenience of administration; that it never attempted to sell news at a profit; that it never represented itself as a general purveyor of news; had never sought to sell news to the public; had never paid dividends; nor had it ever had in contemplation the conduct of a dividend-paying business.

The Postal main office at Denver, Col., is to be enlarged to better accommodate the rapidly increasing business at that point.

"Get Your Money's Worth."

"Did you ever stop to think of the length to which the average American man and woman will go in order to feel that they are getting value received?" asked the talkative telegraph operator of the Bangor newspaper man who had just dropped into the office to wire James Gordon Bennett declining the managing editorship of the New York Herald.

"It's a fact, though," he continued, "and here in a telegraph office we're up against that sort of thing almost every minute of the day. Get Your Money's Worth is an American motto all right, all right, even if we do have the reputation of being the most liberal nation on the face of the globe, and according to my way of thinking it's no disgrace if it is.

"Nine people out of ten when they come in here to send a telegram can easily get all they want to say into a ten-word message, costing twenty-six cents, and by far the greater majority of them make an awful time in filling the blank up to their satisfaction. For instance, some man will come in here with the intention of letting his wife know of the time he expects to arrive home. He will twirl a pencil about in his finger for a few seconds and then he will write, 'Arrive home Thursday morning,' or whatever other time it happens to be. This is all that he really wants to say, but on counting his message he finds that it contains only four words, something that will never do in the world. He is paying for ten and the instinct to get the other six in somehow is strong. He never seems to think of letting well enough alone and letting the message go as it is.

"The man screws up his eyes and gazes fixedly at the clock for a few minutes and then he takes a fresh blank. For a moment he pauses undecidedly, and then he writes the same four words that he inscribed before, 'Arrive home Thursday morning.' Here he stops helplessly and counts the words over three or four times. At last he seizes the pencil firmly and adds, 'Hope you and John are well.' Then the man counts his message over, finds he has exactly ten words, puts the exact change on the counter and walks out of the door with the consciousness of 26 cents well spent. It's a funny thing, but I tell you it happens almost every time.

"When you think of the time that the average business man, who usually is so chary of his seconds, wastes on sending messages of this sort you are actually astonished. It amounts up to considerable at the end of the year. Very often you will strike a man who needs a few more than ten words in which to express all that he wants to say, and then the boot is on the other leg with a vengeance.

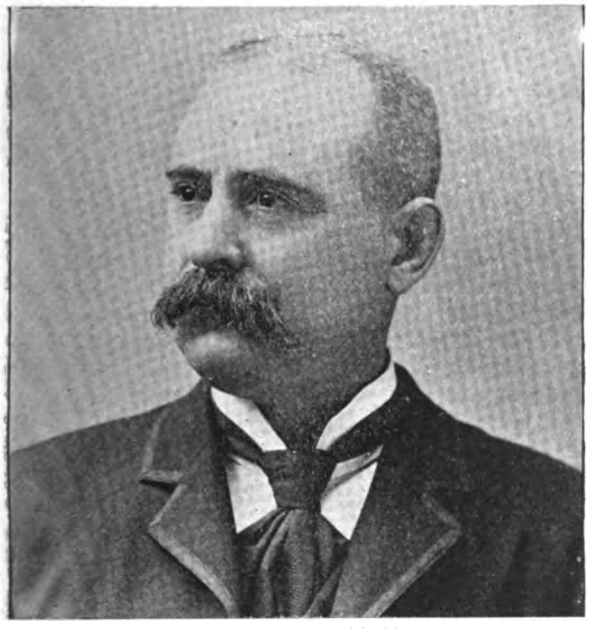
"Why, I have frequently seen men scheme for fifteen or twenty minutes to keep their message down under the ten-word limit so that they wouldn't have to pay the telegraph company a few cents extra. The great proportion of these men wouldn't think of economizing on such a scale in anything else, but so long as it's a telegram it's different."

TELEGRAPH AGE is convenient for reference.

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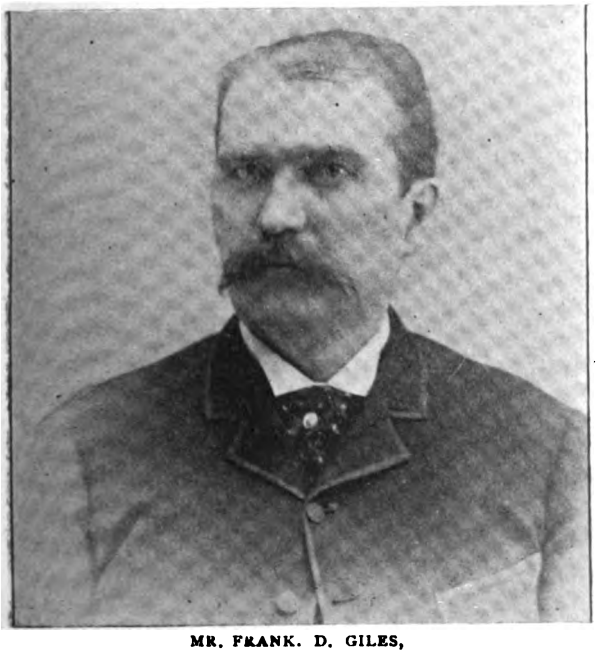
The Men Who Handle a Large Telegraph Office at Night.

Mr. Edward F. Cummings, night manager of the Western Union Telegraph office, 195 Broadway, New York, owing to sickness, which has kept him



MR. JAMES C. ROBINSON,
Night Manager, Western Union Telegraph Co., New York.

from the office for the past sixteen months, has resigned, and Mr. James C. Robinson, for many years assistant night manager, has been appointed to fill the vacancy. Mr. Frank D. Giles, has been



MR. FRANK. D. GILES,
Asst. Night Manager, Western Union Telegraph Co., New York.

appointed assistant night manager, and Mr. E. T. Burrill has been advanced to the position of general night traffic chief.

Night Manager Robinson is a native of New Hampshire, having been born at Portsmouth, January 14, 1849. He entered the telegraph service in 1864, and he has had, therefore, thirty-six years' telegraph experience in all branches of the operating department. He came to New York in 1882, and held various positions on the night force, working his way up from an operator to his present appointment. He is an extremely popular official.

Assistant Night Manager Giles was born near Ovid, New York, July 28, 1849. He also entered the telegraph service in 1864, in the West. He has held important positions in various sections of the country, including Pacific Coast cities, and coming East, he entered the Western Union Telegraph Company's service in the New York office in 1885, since which time he has held various official positions in the general operating room.



MR. E. T. BURRILL,
General Traffic Chief, Western Union Telegraph Co., New York.

General Traffic Chief Burrill is also of New England birth, he having been born at Newburyport, Mass., in 1860. His telegraph career begin in 1874, since which time he has filled places in various Eastern cities until about ten years ago, when he accepted a position on the night force at 195 Broadway, New York.

All of these gentlemen owe their promotion to their keen telegraphic insight, cool and accurate judgment, and executive capacity for successfully handling large numbers of telegraph operators. The day manager, Mr. A. E. Sink, who has entire charge of the operating department, is to be congratulated in thus bringing about him so able a trio.

Recent Telegraph Patents.

A patent has been issued to E. B. Ellicott, of Chicago, for a telegraph signaling apparatus.

Mr. C. D. Olsen, of Denver, Col., has been granted a patent for a telegraph repeater.

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LETTERS FROM OUR AGENTS.

To Our Agents.

While we are desirous to receive from our agents letters for publication respecting their various offices and their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters.

ST. LOUIS, MO., WESTERN UNION.

Among the arrivals during the last few months, who have remained with us up to date, we note: Messrs. V. D. Shackelford, M. J. Cassidy, Leon T. McKnight, W. C. McCain, Raymond Alger, Geo. Baron, E. P. McGrath, J. W. Coyle, J. W. Haygood, P. J. McGriff, Asa Davis, Roy Baker, Harrie Coe, A. J. Carlin, Geo. Miller, Theo. E. Hill, Frank J. O'Connell. Lloyd H. Lankford, Robt. Fitzpatrick, W. H. Snyder, M. J. Conerty, and M. T. Murphy.

Miss Ollie Murray, of the Wheatstone, left Dec. 15 for a vacation of several weeks. She will spend her time in Alabama.

Mrs. Bettie Turner, of Chicago, was a visitor Dec. 6.

Learning the Wheatstone—copying tape—the Misses Ida Ernesthauser, Lottie Link, M. Booth, L. Rahm, K. Walsh, Susie Schwarty, Ida Schraga, and Mrs. C. N. Philbrook; Messrs. Geo. J. Goehringer, Leon T. McKnight, and Stephen Mulroy; —to punch—Messrs. Wm. Score, Raymond Alger, "Dip" McCruden, M. J. Cassidy, and Geo. Bagot.

CHICAGO, ILL., WESTERN UNION.

Mr. Geo. E. Dunning, the newly appointed assistant chief operator, is pleased to announce his acceptance of the agency of The Telegraphers' Mutual Benefit Association, formerly held by Mr. L. K. Whitcomb. Mr. Dunning will gladly demonstrate the value of this association to the telegraph people, and will furnish all circulars and books required upon application.

Mrs. V. T. Kissinger died at St. Luke's Hospital, this city, December 10, of appendicitis. The remains were taken to Sunbury, Pa., for burial. We feel it a great loss, and her memory will live forever in the hearts of her relatives and friends, and much sympathy is extended to Mr. Kissinger.

James Carroll, of New York, was a visitor here recently on his way north.

Mr. Fred. Webber, chief operator at Springfield, Ill., was a visitor here December 18.

Sympathies are extended to Nick Hotter, who recently lost a sister.

James J. Conniff, of the City Line Department, buried his father a few days ago.

The wife of Albert E. Johnson has been at the Chicago Hospital several weeks, but is now reported as convalescent.

MONTREAL, QUE., CANADIAN PACIFIC.

Mr. James A. Collie is confined to his home with typhoid fever. It is to be hoped, however, that he will soon be at his post again. During his absence Mr. W. G. Medley has been assigned to his wire, and is apparently giving satisfaction.

Mr. S. S. Dickenson, superintendent of the Commercial Cable Co., Canso, N. S., was a recent visitor, as was also Mr. Charles Huband, chief delivery clerk, of the Canadian Pacific Railroad office, Ottawa, Ont. Mr. Arthur King, is now manipulating the typewriter exclusively, and turns out excellent copy.

Mr. John Cole, the all night check and sorter, will in all probability be among the graduates from this office next spring, judging from the advance he has made recently. He does a good deal of helping out during the wee hours, which gives him excellent practice.

Mr. D. McCrae, has resigned and returned to his first love—the grocery business. He will join his uncle, who is already in the business at Kingston, Ont.

Mr. R. H. Stephens has been transferred from the St. James street ticket office to the main office.

Christmas boxes were quite numerous this year, especially among the ladies. The usual half-holiday was generally observed, and everybody apparently enjoyed his turkey.

We wish all a prosperous and a Happy New Year.

BALTIMORE, MD., WESTERN UNION.

Oliver S. Walmsley, for the past five years receiving clerk at the Chamber of Commerce office, died on December 10, of consumption. Deceased had been in the employ of the company nearly fifteen years. He was a member of the 4th Regiment M. N. G. and of the Jr. O. U. A. M., both of which organizations were represented at the funeral. A beautiful floral tribute was sent by his fellow employees.

John I. Kuhn and C. H. Hoff are now day and night operators, respectively, at Union Station.

Carley Edwards, check boy, has been appointed operator at the Carrollton Hotel. Jacob Lepper has been appointed receiving clerk at the Chamber of Commerce.

After an absence of eighteen months, Geo. B. Kreh has returned in improved health. He is on the extra list.

A student in a country office made a number of strenuous attempts to send a message to a city office. Finally the operator in the city told him: "I will wait until the operator comes in." "All right," says Mr. Countryman. "When will he be there?"

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SAN FRANCISCO, CAL., WESTERN UNION.

J. V. O'Brien has been appointed operator at Tanforan Race Track, vice Andy Martin, who has engaged in private business.

Leslie Harkness has resigned to accept a position in a commission house as operator of the Chicago leased wire.

Chas. Weiler has gone to Reno, Nev., as operator for a broker in that city.

Thos. Crow rejoices in the addition of boy number two to his family.

V. V. Stevenson has gone to Los Angeles to engage in private business.

Geo. Lowell, of the Wheatstone, and Ed. Dorgan are on the sick list.

Frank Cuyler, of the Call, is visiting friends in the country.

Electrician Lewis McKissick recently went on a business trip to Seattle.

San Francisco has some very long circuits, among them one being to New York, one to Vancouver, B. C., and three to Chicago, in the day, and several others at night.

Miss Bacon went to Chico as acting manager during the holidays.

T. E. Gallagher, of Moselle, Nev., Southern Pacific office, and formerly of this office, is visiting friends and relatives here.

The most complete tie-up of business from a wind storm that this vicinity has experienced in the history of this office occurred December 14, about 10 o'clock A. M. A southeaster struck here, and while the coast line was all carried away by a tree falling across the track, the wind carried poles and all into the bay for a distance of a mile along Oakland Mole. Sacramento became the terminus for a while of the overland routes, Portland, and other wires that usually work through to San Francisco, and a call for operators to go to Sacramento to help out was responded to by Messrs. Whipple, Bell, Ryan and Horsman. For a number of hours not a wire was working except the city lines and they were in a very bad way.

The many friends of Mr. J. V. O'Brien will be pleased to learn of his appointment as assistant to Manager Reynolds. Mr. O'Brien has been in the employ of the Western Union for a great many years and his promotion is a stimulus to others who have hopes of having faithful services rewarded. Mr. O'Brien's selection in a business way is a good one, as his extensive local acquaintance promises to come in good play in securing additional business for the company.

Mr. Dixon, division chief of Chicago office, spent a few days in this city recently on his wedding trip.

Chief Operator Converse is confined to his home with a carbuncle and quite a number of others are also on the sick list.

NEW ORLEANS, LA., WESTERN UNION.

Congratulations are extended to Mr. and Mrs. Dearman, of Hattiesburg, Miss., on the arrival of a little stranger, and the same to Mr. and Mrs. Ed. Friedman, of New Orleans, for a like occurrence.

Foreman Henry C. Turner says he is a little late in subscribing for TELEGRAPH AGE, but better late than never.

Joseph Holthouse is with the Western Union again.

Oscar M. Donovan is with the Western Union at Hattiesburg, Miss.

W. H. Bauder has gone to Havana, Cuba.

Messrs. Bell and Johnson have joined the Signal Corps.

Wheatstone copyists and punchers: J. T. Elliott in charge; Messrs. Richards, Wark, Gowland, Smith, Bechtel, Schraut, Davis, Tognori.

New Arrivals: Messrs. Dearman, McMahon and Richardson.

DENVER, COLO., WESTERN UNION.

The personnel of this office is as follows: J. P. Altberger, manager; T. A. McCammen, chief operator; J. A. Jenkins, assistant chief; W. N. Fashbaugh, wire and traffic chief; A. C. Parsons, timekeeper and assistant traffic chief; G. E. Lawton, night chief; S. R. Beatty, night wire chief. Operators: Mrs. S. E. Hilkes, E. F. Street, J. A. Hogan, C. G. Neimeyer, Miss C. E. Smith, Joseph White, W. H. Simpson, O. E. Hogan, J. H. Ryan, J. W. Gargan, Miss Ada Guernsey, H. B. McChesney, W. E. Atchison, G. O. Henning, L. A. Crisler, C. P. Melton, Mrs. M. F. Early, M. R. Dwyer, F. S. Rochford, H. E. Madison, S. E. Smith, H. E. Thomas, W. S. Pitts, F. Wessel, Wm. C. Lampe, W. J. Pokorney (Republican office), E. T. Goodell, J. H. Masden, D. Clamage, F. E. Gargan, F. J. Martin (with Proudfut & Co., mining brokers), W. H. Skidmore, C. M. Pedley, M. E. Harris, Miss A. L. Davy, C. H. Bowles, Henry Mandles, A. G. McKay, Miss N. McChesney, B. F. Bush, F. J. Lippert, Victor Bergstrand, W. D. McDonald, F. M. Murphy, Miss A. M. Frazier.

W. S. Pitts and M. E. Harris have exchanged positions temporarily, Pitts going to main office, Harris to News office.

J. H. Ryan spent Christmas with his mother at Kansas City.

Edward F. Street, of the Kansas City local, reported ten minutes late a few weeks ago and being questioned by Assistant Chief Jenkins as to the

$100 Reward, $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages and that is Catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials.

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cause, smiled and said: "It is only a twelve-pound boy."

The marriage of Miss Maud May Bernheisel to Arthur C. Parsons occurred on December 26. Mr. Parsons is one of the brightest young men in the profession and every one wishes him a long and prosperous married life.

H. G. Robinson, formerly of Union station, Kansas City, Mo., has been appointed manager Equitable Building office.

E. W. Simmons is now located with a broker.

Robt. Hayes and Chas. Smith, who are with Morgan Brokerage Company, call around occasionally and renew old acquaintances.

Herbert Dodge has left us and is now located in President Trumbull's office of the Colorado and Southern Railway.

Orville B. Price is with H. S. Shaw, mining broker.

Miss Titus is our new manager at Brown's Hotel.

R. K. Pierson, agent Colorado and Southern Railway, Longmont, Colo., who worked in St. Louis, Mo., twenty years ago, looks as young as he did then and takes great pleasure in discussing old times and old timers.

Associated Press staff: H. C. Class is chief operator; Geo. Allen, night chief; Wm. Wootton, J. C. Corum and Messrs. Trickle and Horn, operators. Wm. Hunter, who has been with The Associated Press at Denver for several years, is now located at Pueblo for same association.

POTTSVILLE, PA., POSTAL.

Joseph and Wm. Bennie, formerly operators at North Mahanoy and Tunnel Ridge collieries, have resigned their respective positions and are now traveling as magicians.

Earl Boner and G. Ivory, of New Berry Junction, are enjoying a month's vacation during the holiday season.

Daniel Eagan and James Haughton, of St. Nicholas, were here lately and called to see us.

Pierce Littlehales, of Mt. Carmel, called on friends at this place on December 23.

John Brobst, night operator at Philadelphia and Reading station is the happy father of a daughter.

Thomas Merrick, of The Associated Press at Easton, Pa., and Miss Hannah Brosnahan, of the Postal, at Philadelphia, came home to spend the holidays.

H. C. Hiney, of Frackville, Pa., resigned his position at that place and has left for Philadelphia, where he has accepted a position in the terminal office.

CLEVELAND, O., WESTERN UNION.

One of the surprises of the past month was the marriage of Mr. Albert Herbert to Miss Helen Vance Fitch, of Kinsman, O. Mr. Herbert has been with the Western Union for the past four years. Miss Fitch is one of Kinsman's society belles.

The bride and groom have the best wishes of a large circle of friends.

A number of the fraternity are nursing sore arms due to the health department insisting on vaccinating those who were exposed to smallpox, which broke out here recently.

A number are away on holiday vacation. Among them are Messrs. Hay, Zink, Newman, Mrs. Kelly and Miss Martin.

David Baker has been transferred to the switchboard, where he is, like the others, "looking for trouble."

PHILADELPHIA, PA., POSTAL.

The Philadelphia Postal staff takes pleasure in extending the season's greetings, through the columns of TELEGRAPH AGE, to all other Postal employees in particular and the fraternity in general.

Our check boys and girls, of the day and night forces, presented their annual "sheet," to which the operators, from the chiefs down, responded liberally and helped to gladden the hearts of these embryo telegraphers and possible presidents.

Half-holiday hours were posted, affording every one the privilege of spending the day according to his own pleasure.

Mr. "Bob" Stoddard, who works the first Harrisburg local, took a few days off to visit and enjoy a personal chat with those with whom he works daily.

A second bonus wire was established between here and New York with the Messrs. William Wisegarver and W. F. Gardner manning it. This wire virtually replaces the common side of the first quad, which will hereafter be used for the overflows.

Proud smiles illumine the face of Mr. William Madden these days. Investigation proved the cause to be the arrival of his first son and heir. Congratulations are in order.

The transparent window clocks, giving the London, San Francisco and standard time, have been installed in their places and attract considerable attention from the passing throngs.

Resigned: Mr. J. T. Sullivan. Jake Lemisch, who resigned some time ago to enter into commercial pursuits, has again resumed a place among us. Another arrival is Mr. F. G. Spiker.

Mr. Joseph Bowers, a former employee of this company, and more recently with brokers in this city, died December 16. He leaves a wife and several children.

KANSAS CITY, MO., WESTERN UNION.

John J. Shelley, who has supervision over the check forces and is also assistant to the quad chief, is confined at his home with pneumonia.

Eugene T. Potter has journeyed to the sunny South and taken a position as night operator at a small railroad station in Louisiana.

NEW YORK, WESTERN UNION.

Mr. Harry Sauer, of the Eastern Division, has been absent several days on account of sickness.

The Eastern Division has a satisfactory acquisition in Miss Tessie M. Meyer, daughter of Mr. Conrad Meyer, Eastern chief operator, who has been assigned to the New Haven wire.

Mr. Michael C. Carr, who for the past twelve years has been employed as porter on the seventh floor, died at his residence in Brooklyn, December 12.

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Miss Emma Roehm, an operator of this office, died December 24. She was the sister of Mr. George Roehm, of General Superintendent Tinker's office. Many telegraphers were present at the funeral services, and the numerous friends of Mr. Roehm extend sympathy to him and to the family.

Messrs. J. J. Phelan, T. Nolan, P. Collins and Martin Durivan have gone to Florida for the season.

Mr. P. O. Purcell spent the holidays at his old home in Scranton, Pa.

The many friends of Mr. Patrick J. Tierney, manager of the Cable office, 16 Broad street, this city, sympathize with him in the death of his wife, December 4.

Christmas was observed as usual by that spirit of peace, joy and good will which always prevails in a big fraternal family such as is found at "195." Many handsome and valuable presents were sent and received by us from near and from far to remind us of the love and esteem of our relatives and friends. Miss Eva J. Hall now wears a large-sized diamond ring; Mr. Michael F. O'Neill a scarf-pin with the colors of a rainbow; Mr. John Doyle a handsome blackthorn cane; Mr. Jerry Dunn, Geo. W. Irwin and John A. Dreams were the recipients of substantial "checks."

Typewriters expressed or sent to our shop, repaired or rebuilt at lowest prices for operators. Cylinders, ribbons, at reduced prices; machines bought, sold and rented. Wall & Butler, 57 Dey street, New York. (Adv.)

Any fifty-cent piece of music mailed eighteen cents. Rusticana, Anchored, Calvary, Palms, Flower Song, ten cents each. Anything at less than half publisher's price. I will sell you a good piano for one dollar per week, from $35 up. B. L. Brannan, 195 Broadway, New York. (Adv.)

ANNUAL GATHERING.—Mr. E. G. Cochrane, general superintendent of the Eastern Division of the Postal Telegraph-Cable Company, New York, entertained his superintendents at dinner in this city December 19. Mr. Cochrane has his superintendents meet him in conference once a year in New York to talk over matters pertaining to the welfare of the service. Much resultant good comes from such gatherings. Those present besides the host were: Superintendents Adams, of Philadelphia; Lemon, of Pittsburg; Reynolds, of Buffalo; Kauffman, of Albany; Usher and Blanchard (superintendent of marine department), of New York; Superintendent Pillsbury, of Boston; Assistant Superintendent Bagley, of Boston, and Superintendent of Construction McCollum, of New York. These gentlemen also attended the theater as the guests of Mr. Cochrane on the evening of Dec. 20.

WESTERN UNION WINS.—Judge Lochren rendered a decision December 22 in the suit of the Great Northern Railway against the Western Union Telegraph Company, involving title to the telegraph lines along that road valued at $5,000,000. His decision is in favor of the telegraph company. The railroad company claimed to have acquired this telegraph property when the road was bought.

Miscellaneous Items.

Mr. S. E. Elliott and Miss Mamie Covington, of College Grove, Tenn., were married November 14, last.

Mr. J. H. Emerick, the well-known old-timer of New York, is still seriously ill in one of the Brooklyn, N. Y., hospitals.

Mr. M. M. Davis, traffic manager of the Postal Telegraph-Cable Company, New York, has returned from a Western business trip.

Mr. Robert H. Brooks, chief operator of the Postal, at Memphis, Tenn., was married to Miss C. Sally Mooser, of that city, on December 15.

Mr. Norman C. Sears, of the Cable office, 16 Broad street, is about to make a change to Vancouver, B. C. Mr. Sears is a very reliable man and a first-class operator, and he will be a valuable acquisition to Canadian talent.

Mr. Bell Brooks, the assistant superintendent of the Western Union Telegraph Company, Denver, Colo., was in Galveston a few days since visiting old friends. Mr. Brooks was manager at the stricken city about ten years ago, before his removal to Colorado.

Mr. Frank N. Dowler, general Eastern freight agent of the Toledo and Kansas City Railroad Company, New York, is now general agent of the Equitable Life Assurance Society, with headquarters New York city. Mr. Dowler is an old-time telegrapher, having worked in many Western cities.

Resignations and Appointments.

Mr. E. Waldron, of the Western Union Telegraph Company, Atlanta, Ga., has been promoted to be night chief operator at that point.

Mr. H. D. Lockwood, of Franklin, O., has been appointed manager of the Western Union at Greensburg, Ind., vice J. M. Shannon, resigned.

Mr. T. W. Carroll, chief operator of the Postal Company, Denver, Colo., has been transferred to a position in the office of the electrical engineer of the same company in New York. Mr. H. C. Shaw, manager at Colorado Springs, Colo., has been appointed night chief operator, vice J. B. Coggins, promoted to be chief operator to fill the place left vacant by Mr. Carroll's transfer.

CALENDARS RECEIVED.—We have received from Mr. F. B. Williams, of Patterson, La., a neat calendar for 1901, the first of the kind that has reached our table.

The Direct United States Cable Company has issued its calendar for the New Year. The design includes a daily date pad with blank space thereon for memorandums.

The Commercial Cable Company, of New York, is distributing a very neat calendar, showing on a tinted card its cable system, while at the bottom appears a weekly date pad of unique design.

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Obituary.

William H. Weller, an old-time telegrapher, died at Laporte, Ind., aged 66 years.

Edmund M. Kuhlke, a Western Union operator, of Augusta, Ga., died at that place December 19.

John Anderson, former president of the Commercial Telegram Company, died in New York December 18.

Bernard J. Burke, an operator in the Western Union office at Galveston, Tex., died in that city December 18.

J. Platt Roberts, manager of the Postal office at Mobile, Ala., a position he had held since the first establishment of the office, died of appendicitis in that city December 10. He leaves a widow and five children.

Mr. Lester S. Hills, an old-time telegraph operator, died in Chicago, November 22, aged sixty-five years. He learned telegraphy in 1850 at Hartford, Conn., and afterwards became manager of the Hartford office. Of late years he has been identified with the Edison Electric Light Company, of Chicago.

Louis N. Kirschbaum, one of the best known New York city telegraphers, died of Bright's disease at his home in Brooklyn, on December 21, after a lingering illness. Mr. Kirschbaum had filled many positions in the service of the Western Union Telegraph Company, and of late years had been connected with the Race Bureau. He was 49 years of age and leaves a wife and two children. Mr. Walter C. Burton, chief operator of the Race Bureau, conducted the funeral ceremony.

Frederick R. Place, assistant superintendent of telegraph of the Texas and Pacific Railway, died December 7, at Dallas, Tex. Mr. Place had been connected with the Texas and Pacific about thirteen years. He went to Dallas from Hot Springs, Ark., where he was for some time manager of the Western Union office. He also worked with the Cotton Belt for a time as superintendent of telegraph before he joined the Texas and Pacific. Mr. Place was 47 years old and leaves a wife and two young sons. Deceased was a native of Louisiana, born and reared near New Orleans. He worked as an operator in that city many years ago.

U. S. MILITARY TELEGRAPHERS.—The minutes of the proceedings of the twentieth reunion of the United States Military Telegraph Corps, held at St. Paul, Minn., September 19 and 20, 1900, have been published in pamphlet form and presents in convenient shape a full report of that interesting occasion. The address delivered by the late Senator Davis is included and printed in full.

Personal Mention.

Mr. A. S. Brown, electrical engineer of the Western Union Telegraph Company, New York, is still absent from his office owing to sickness.

Mr. Charles P. Bruch, assistant general manager of the Postal Telegraph-Cable Company, of New York, has returned to the city after a business trip of three weeks in the West and South.

Colonel Charles S. Diehl, assistant general manager of The Associated Press, formerly of New York, but now located in Chicago, was a welcome visitor to the metropolis a few days since.

Mr. Charles A. Tinker, general superintendent of the Western Union Telegraph Company, New York, has so far recovered from his sickness, caused by typhoid fever, as to enable him to return to the office early in January.

Mr. T. E. Hughes, of Pittsburg, manager of the Standard Underground Cable Company, addressed the Manufacturers' Club, at Philadelphia, Monday evening, December 17, on "The Pacific Cable." Brigadier General A. W. Greely, chief of the Signal Service, and Congressman J. B. Corliss, of Michigan, also came on from Washington to participate in the discussion as guests of the club.

Mr. Morris W. Mead, superintendent of the Bureau of Electricity, Pittsburg, Pa., while in the discharge of his duty recently, fell from a ladder which he had climbed in order to find out a possible defect in wiring and broke his right leg near the ankle, fracturing several of the bones. The citizens of the Iron City ought to feel proud of their city electrician, who did not hesitate to act promptly in an emergency and personally satisfy himself as to conditions regarding which serious results might have ensued.

Recent New York Visitors.

Mr. W. S. Logue, of the Edison Phonoplex Company, of Orange, N. J.

Mr. Frank Kitton, chief operator, Western Union Telegraph Company, Buffalo, N. Y.

Mr. Geo. L. Lang, of Lexington, Ky., superintendent of telegraph of the Cincinnati, New Orleans and Texas Pacific Railroad. Mr. Lang spent the holidays in New York and Boston.

The Electric Building-Loan and Savings Association will hold the annual meeting of its shareholders at its office, Postal Telegraph Building, 253 Broadway, on January 11. A meeting to elect auditors and nominate officers will be held at the same place just before the annual meeting.

The Modern Service of Commercial and Railway Telegraphy (8th Edition, revised and enlarged), by J. P. Abernethy. The theory and practice, including railway station and express service. Arranged in questions and answers. 425 pages, 40 illustrations. Price $2.00, expressage prepaid. Address John B. Taltavall, The Telegraph Age, 253 Broadway New York.

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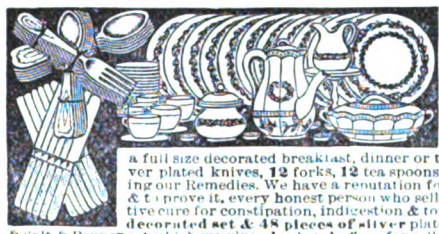
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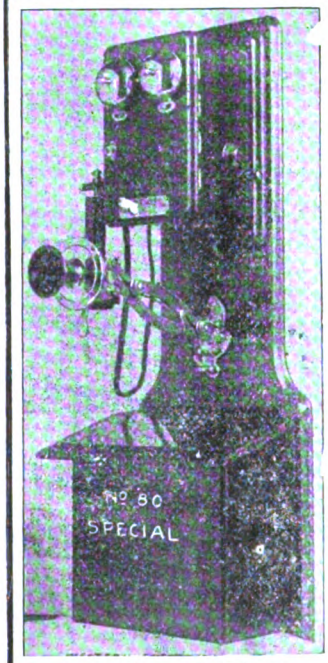
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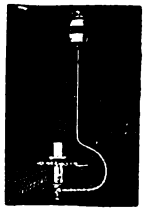
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A. B. Stockham, M.D., of Chicago, editor of "Tokology," recommends it highly, as also does Congressman John J. Lentz, Hon. Chauncey M. Depew, Rev. C. M. Keith, editor "Holiness Advocate"; Mrs. Senator Douglas, Rev. James Thoms, Ph.D., pastor First Baptist Church, Centerville, Mich.; Rev. J. C. Richardson, Roxbury, Mass.; Rev. H. C. Roernaes, Everett, Kan.; John T. Brown, editor "Christian Guide," and thousands of others.

Ira L. Gleason, prominent citizen of Hutchinson, cured himself of rheumatism and his friends of colds, pneumonia, fevers, grippe, blood, skin and kidney diseases, and made $2,500 selling this Cabinet in a little more than 12 months. Mrs. Anna Woodrum, of Thurman, Iowa, afflicted 10 years, was promptly cured of nervous prostration, stomach and female troubles, after medicines and doctors failed. She recommends it to every woman as a God-sent blessing. O. C. Smith, of Mt. Healthy, Ohio, was cured of a bad case of catarrh and asthma, and says: "It was worth $1,000 to me. Have sold several hundred cabinets; every one delighted." O. P. Freeman, an aged railroad man, afflicted 17 years, unable at times to walk, was cured of kidney troubles, piles and rheumatism. Thousands of others write praising this Cabinet, so there is absolutely no doubt of it being a device that every reader of our paper should have in their homes.

This invention is known as the new 1903 style, Quaker Folding Vapor Bath Cabinet, and after investigation we can say that it is well, durably and handsomely made of best material throughout, has all the latest improvements, will last a lifetime, and is so simple to operate that even a child could do it safely. It folds flat in one inch space when not in use; can be easily carried; weighs but 10 pounds.

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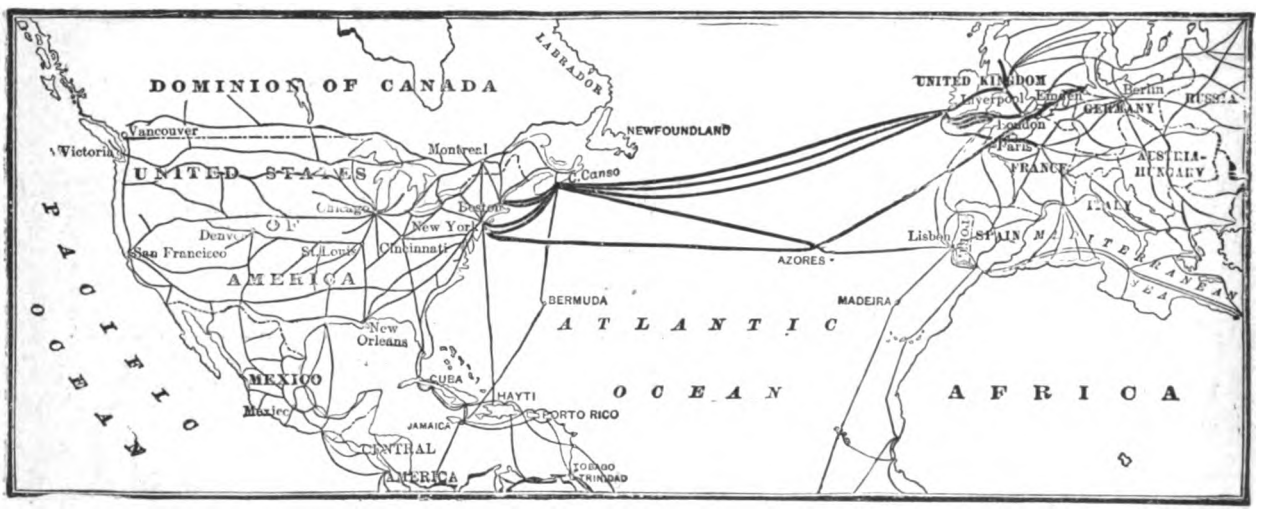
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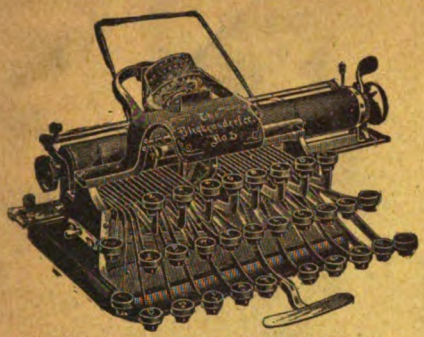
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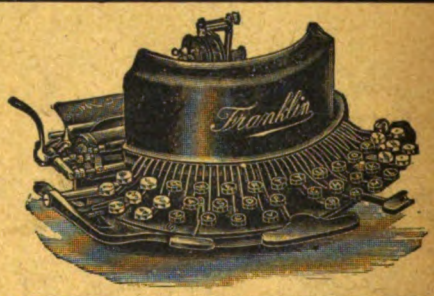
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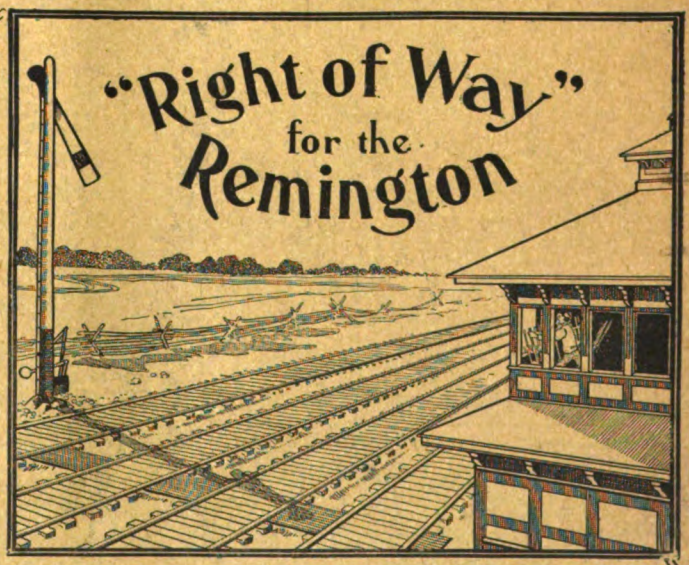
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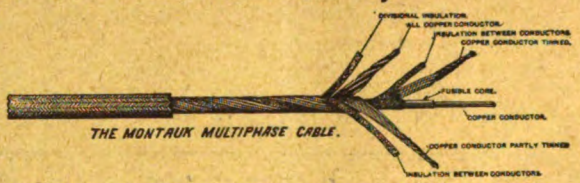
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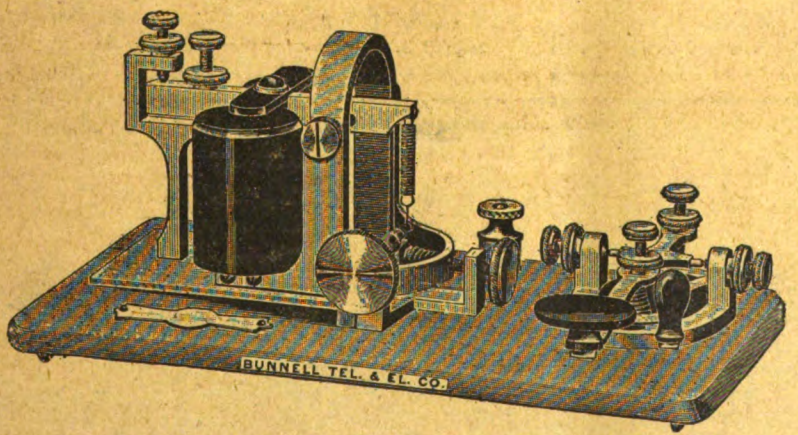
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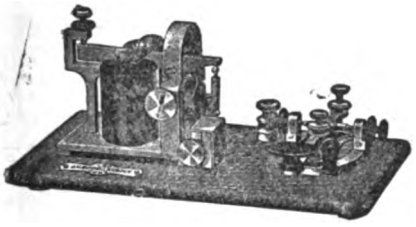
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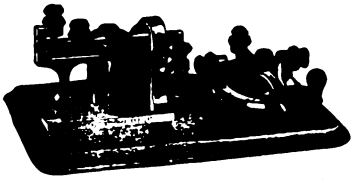
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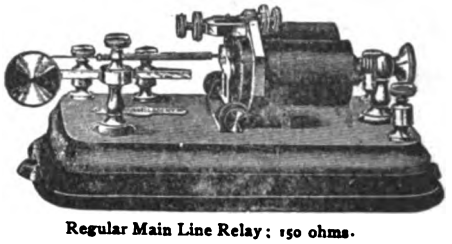
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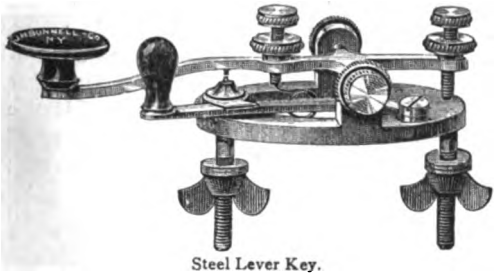
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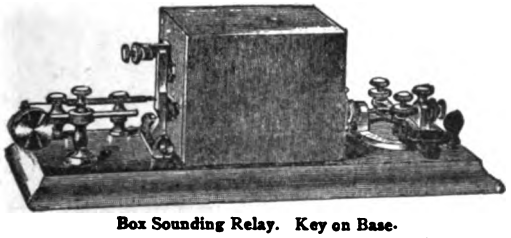
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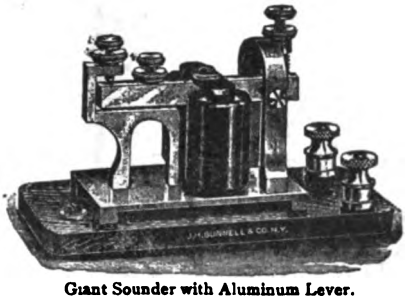
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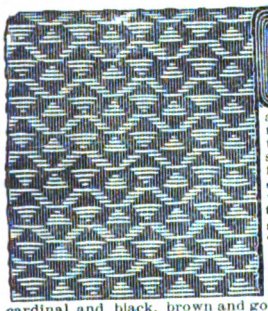
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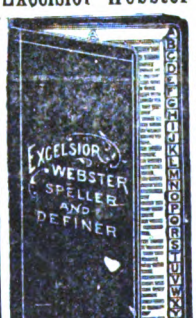


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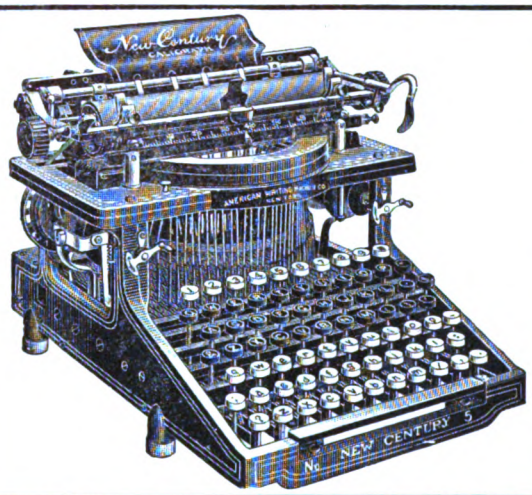
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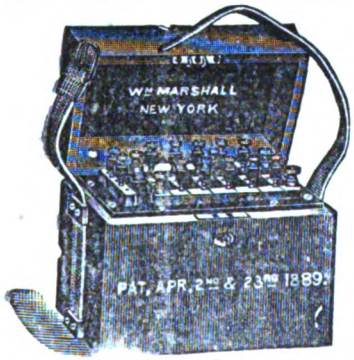
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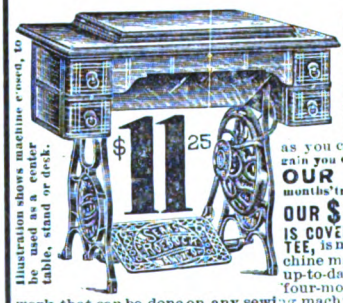
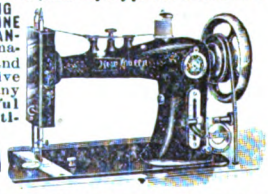


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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

The Galvanometer—Continued.

Having devoted the preceding instalments of this article to a description of the construction and principal features of a galvanometer, it yet remains to show the manner in which the instrument is employed and mention some of the accessories which form a part of an electrician's outfit designed for the purpose of making electrical tests.

The mere deflection of the needle of a galvanometer will not, in itself, always convey practical information to the experimenter, other than to indicate the presence of an electric current. In fact, the majority of tests mean nothing definite until the deflections are killed; that is to say, until every trace of an electric current has been eliminated from the coils of the galvanometer, and the needle stands at zero.

In order to control these deflections an additional circuit to the one to be measured must be provided, in which either the electrical pressure, or the magnetic strength of the current, due to a common battery, will exert its influence against like forces in a companion circuit. The idea, of course, being that if two conductors possess identical properties, the phenomena developed in each circuit must also be identical in kind and value. Hence, if a given force (directed towards the coils of a galvanometer) in one circuit be opposed by an equal force in a companion wire, the effect on the needle of the instrument will be nil.

In practice the galvanometer is usually placed between two such separate forces, in a circuit of its own—as the rung of a ladder joining two parallel supports.

It is quite evident, therefore, that the extra circuit must be adjustable; that is to say, capable of being shortened or lengthened as desired, and portable. An artificial line consisting of many separate coils of wire joined together, any of which may be cut in or out as desired, meets the requirement exactly; hence a rheostat is a necessary accessory of the outfit, while the peculiar construction of the one belonging to the testing outfit, or rather the manner in which the coils of the same are divided, so that the galvanometer circuit may "bridge" the two wires at an equal distance from the battery, gives rise to the term "wheatstone bridge" as the name of the device, after the inventor, Sir Charles Wheatstone of England.

Before describing this device let us study the idea which suggested the arrangement of its coils.

If a battery be connected to two wires possessing identical length and uniform diameter, a galvanometer "bridged" across the two circuits at any two points equidistant from the electromotive force, will show no trace of electricity nor deflection of the needle, because the electrical pressure in each circuit at such points is identical. This is due to the fact that the pressure of a battery diminishes along a line in direct proportion to the percentage of the total resistance of the circuit overcome.

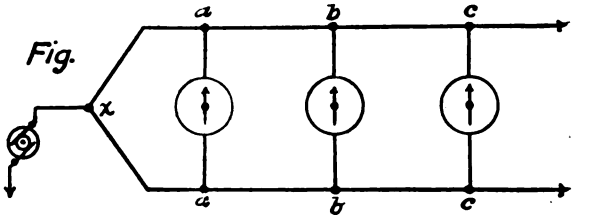


Fig.

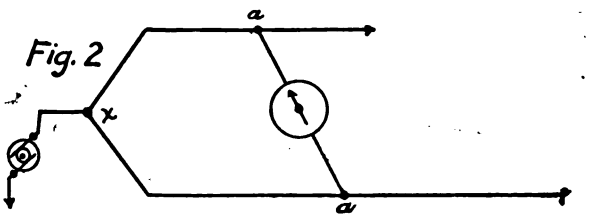


Fig. 2

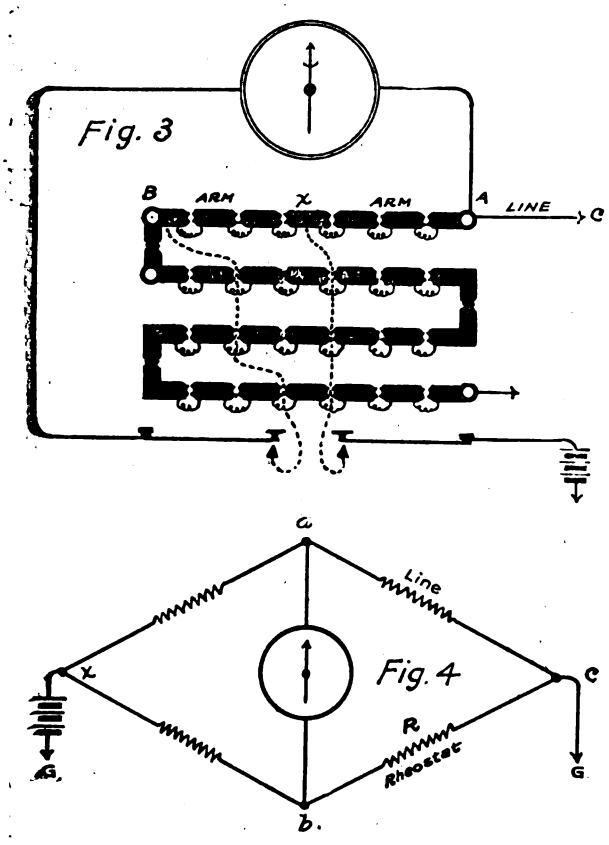
In Fig. 1 the pressure drops gradually and uniformly inch by inch, because the two conductors are identical in all respects; hence the location of the bridge or galvanometer connections for "no current" are always directly opposite each other, regardless of the point chosen along the length of the conductors themselves. (See connections *a*, *b* and *c*.)

If, however, two circuits identical as to size and composition, but differing in length, be substituted for those in the first illustration (as shown in Fig. 2), the location of the equipotential points will not

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be found at equal linear distances from the battery, but at such points where the percentage of resistance overcome are identical.

For example, suppose that in Fig. 2 wire No. 2 be twice the length of wire No. 1, and, consequently, possesses twice as much resistance as the latter; and that we wished to connect a galvanometer across the pair at points where the electrical pressures are of equal value. If the middle of wire No. 1 be selected for the connection of one terminal of the galvanometer circuit, it is evident that the other connection cannot be made directly across (as we view the cut), but at midway in the length of wire No. 2, because at those points the electromotive force of the battery will have overcome fifty per cent. of the total resistance in each route, and, consequently, have dropped exactly half of its initial pressure.



The point we wish to bring out by the two illustrations is, that a short length of wire, say a few feet, will suffice to connect the galvanometer between such points in any parallel conductors of uniform size, whereas several miles of wire might be insufficient when the conditions are such as shown in Fig. 2.

Bearing these facts in mind, Sir Charles Wheatstone conceived the idea that if he constructed two artificial circuits of equal length, or resistance, to which the wire to be measured and the adjustable rheostat proper, respectively, might be connected as *extensions* thereto, he could maintain the conditions existing in the first illustration, and connect the galvanometer permanently across the "bridge" or "arms" of the two circuits—all within a compact space.

The actual construction of the Wheatstone bridge, or combination rheostat, as it might be termed, is shown in Fig. 3, while Fig. 4 is the conventional way of placing the coils and rheostat before one's eyes in order to trace the windings clearly and at the same time give a theoretical view of the "bridge" with the galvanometer permanently connected in its proper place between the wire to be measured and the adjustable artificial line proper.

In Fig. 4, X———A and X———B are the two arms or sets of coils referred to as the artificial circuits to which the said wire to be measured and the adjustable rheostat proper are respectively attached. One glance at the illustration should be sufficient to show the part that these arms play in bringing about the conditions existing in Fig. 1, and at the same time show how simple a matter it is to ascertain the conductivity or ohmic resistance of a wire when connected to one arm of the bridge like that of line A———C. The diagram is self-explanatory, and in its simplicity almost gives the secret away.

The two arms, X———A and X———B, are made equal in length or ohmic resistance, hence no matter whether their value be 500 ohms or 5,000 ohms, A and B must always be exactly the same "distance" from the battery attached at X when the resistance of line A———C and that of the rheostat R are identical.

The resistance of line A———C being unknown, its value is found by altering the resistance in the rheostat by means of metallic plugs until the needle of the galvanometer ceases to be affected by the current, which divides at X and traverses both circuits. When the needle points to zero count the number of ohms unplugged in the rheostat, and the figure or figures thus obtained will represent the true value of the line A———C.

(*To be continued.*)

Obituary.

Martin A. Fleming, a Boston, Mass., telegraph operator, died January 3 in a hospital in Long Island, N. Y., aged 37 years. He was well and favorably known in telegraph circles, both in Boston and New York, where he had been employed by telegraph companies and brokerage concerns.

Mrs. B. O. Strong, who was formerly Miss Lizzie H. Snow, died at Plymouth, Mass., January 4, aged 58 years.

Mrs. Strong was one of the best known women telegraphers; for many years she had charge of the Western Union city lines, New York, and the Cooper Union Telegraph School was also for a long period conducted under her direction. She was one of the original members of the Telegraphers' Mutual Benefit Association, her certificate, No. 113, bearing the date of November 15, 1867.

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Miscellaneous Items.

Miss E. D. Wilkinson, manager of the Postal Telegraph-Cable Company, Cedar Falls, Ia., is spending a four weeks' vacation at her home in Ripon, Wis.

A. W. Hawker, of Manchester, N. H., has been appointed manager of the Postal Telegraph-Cable Company at Bridgeport, Conn., vice Frank Murphy, resigned.

Mr. J. H. Emerick, the well-known, old-time telegrapher, who has been seriously ill at the Seney Hospital, Brooklyn, is now convalescing, and has been removed from that institution.

Count William de la Motte, the veteran telegraph manager, stationed at Sandy Hook, N. J., who signals all incoming vessels, in renewing his subscription for another year, says TELEGRAPH AGE "grows younger with every edition."

Mr. Frank C. Mason, general superintendent of police telegraph, Brooklyn, N. Y., read a paper in Charleston, S. C., before the fire department convention in that city, on December 13. The paper was entitled "The Fire Departments of Our Cities," and was enthusiastically received.

Mr. A. V. Mann, of the Postal night force at Boston, Mass., who was admitted to the bar last year, has opened a law office in the Rodgers Building, 209 Washington street, that city. Mr. Mann has represented TELEGRAPH AGE at Boston for the past eight years; his pushing abilities have always made a favorable impression with us.

W. B. Murnan, manager of the Western Union office at Winchester, Va., in renewing a substituted subscription of his predecessor, writes: "I cannot see my way clear to be deprived of this valuable paper; no operator should be without it. Do not fail to start sending it January 1, and do not miss sending a single copy, as we look for it as we do our checks."

Veteran John Wintrup, superintendent of telegraph of the International Navigation Company, Philadelphia, Pa., was the recipient on Christmas morning of a beautiful calendar from Mrs. W. J. Bodell, of Fortress Monroe, Va., wife of the well-known old-timer and military telegrapher of that place. Dangling from the top were two infants in effigy, and Mr. Wintrup was instructed to preserve these youngsters and teach them to love their parents. As Mr. Wintrup is childless, the joke will be appreciated.

Mr. James H. Drakeford, manager of the Western Union office at Asheville, N. C., was married in Chicago on January 1, to Miss Clara Bristol, of that city. The bride is the daughter of Mr. and Mrs. Charles H. Bristol, the bride's father being general superintendent of construction of the Western Union Telegraph Company, Chicago.

Mr. Drakeford is a well-known member of the telegraphic profession, and for the past fifteen years has been identified with the service at Asheville, N. C., where he began his telegraphic career as an operator. He is one of the best known managers in Superintendent Tree's district.

The first telegram received in the Postal office at Chicago, Ill., on January 1 was from Mr. Thomas E. Fleming, special agent of the company in New York, and was addressed to Mr. E. J. Nally, of Chicago, congratulating him on his appointment as general superintendent at that place. Mr. Nally's reply to Mr. Fleming's congratulation happened to be the first message transmitted out of the Chicago office on the same date. These messages have been duly certified to by the chiefs in charge, and are now part of the history of the new century.

Personal.

Mr. George von Chauvin, of London, England, the European representative of the Western Union Telegraph Company, and general manager of Siemens Brothers, cable manufacturers, of London, has returned home, after a brief visit in the city, made in the interests of the latter concern.

Mr. Robert Atkinson, of London, England, general manager in that country of the International Cable Directory, universal edition, and the Western Union Telegraphic Code, who was recently in the United States on a combined business and pleasure trip, took occasion when here to renew many old friendships.

Resignations and Appointments.

L. B. Thompson, of the Atlanta, Ga., Western Union office, has been promoted from night chief operator to day chief operator.

Mr. C. A. Garland, manager of the Postal Telegraph-Cable Company, at Pensacola, Fla., has been appointed manager of the same interests at Mobile, Ala., vice J. P. Roberts, deceased. Mr. H. H. McLellan has been appointed manager at Pensacola, to succeed Mr. Garland.

New York Visitors.

Mr. A. C. Terry, electrician Western Union Telegraph Company, Syracuse, N. Y.

Mr. E. B. Baker, general manager of the Southern New England Telephone Company, New Haven, Conn.

OLD TIME TELEGRAPHERS' ASSOCIATION.—A full account of the twentieth annual reunion of the Old Time Telegraphers' Association, held at St. Paul and Minneapolis, Minn., on September 18-20, 1900, has been issued. It is in pamphlet form, has 112 pages, and presents such an excellent and well arranged description of the proceedings, the constitution and by-laws, a roster of the old timers and of the United States Military Telegraph Corps, together with numerous engravings of both persons and places identified with the reunion, that the members of the association will be glad to obtain copies. The compilation of the volume is due to Mr. John Brant, the secretary of the association.

The twenty-third annual meeting of the Gold and Stock Life Insurance Association will be held in Room 60, Western Union Building, New York, on Monday, January 21, at 4.30 P. M.

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Magnetic Club's Annual Business Meeting.

The annual business meeting of the Magnetic Club was held at the Western Union Building, 195 Broadway, New York, on January 10, President F. W. Jones in the chair. On account of the unavoidable absence of Secretary R. E. Fagan Mr. George F. Fagan was elected secretary, pro tem. The reading of the report of the secretary-treasurer showed a total membership of 232, and a deficit of $5 in the treasury. President Jones, in accepting the report, spoke feelingly of the benefits derived from the club, and earnestly requested all members to co-operate with him in making the ensuing year a memorable one in the club's history.

The Nominating Committee, composed of Mr. C. P. Bruch, chairman, together with other former presidents, presented, through the chairman, the following nominations for officers for the ensuing year: F. W. Jones, president; W. C. Burton, first vice-president; M. J. O'Leary, second vice-president; John Brant, third vice-president; F. D. Murphy, fourth vice-president, and R. J. Murphy, secretary and treasurer; and the following as members of the Governing Committee, to serve for two years: C. A. Benton, G. F. Fagan, R. E. Fagan and M. H. Kerner. On motion, it was voted to accept the nominations thus made.

At this point the president called M. H. Kerner to the chair, and the question was put as to the election of president. The secretary was authorized to cast a full ballot for Mr. F. W. Jones. On resuming the chair, Mr. Jones called for the remaining nominations, and, upon motion of Mr. D. W. McAneeny, the secretary was instructed to cast a ballot for those named.

Mr. C. P. Bruch suggested the propriety of establishing an honorary members' list, a proposition which called forth some discussion, but which was favorably received.

Mr. W. C. Burton moved that the chairmen of the different committees be invited to attend the meetings of the Board of Governors. This was carried unanimously. Mr. R. E. Fagan, on account of other duties, was obliged to decline a re-election as secretary-treasurer, a position he had held most acceptably during the past year.

Among those present were: F. W. Jones, C. P. Bruch, W. L. Ives, D. W. McAneeny, John Brant, R. J. Murphy, Geo. Roehm, Geo. F. Fagan, W. C. Burton, F. D. Murphy, J. F. Cleverdon, W. D. Schram, E. A. Coney, M. H. Kerner.

ANNUAL REPORT.—The Telegraphers' Mutual Benefit Association has issued in pamphlet form the proceedings of the thirty-fourth annual meeting held in New York on November 21, 1900. It is a comprehensive report of the business of the association during the past year and also since its organization in 1866. Copies of this pamphlet are forwarded to each of the members of the association, but any one contemplating joining this insurance society may obtain a copy of this work by addressing Mr. M. J. O'Leary, secretary, 195 Broadway, New York.

Subscribe for TELEGRAPH AGE, $1.50 per year.

Business Notices.

A large pasteboard box, containing a handsome blotter pad, with corner bindings in bright read leather, together with a daily memorandum for 1901 in book form, also bound in red leather, placed at the left of and an integral part of the pad, the whole constituting at once a brilliant and useful outfit for the office desk, is being sent out by the John A. Roebling's Sons Co., of New York, to their friends, with the card of Henry L. Shippey, the treasurer of the company, enclosed.

The pocket memorandum book for 1901, issued by Foote, Pierson & Company, 82-84 Fulton street, New York, manufacturers and dealers in electrical goods, of which telegraphic apparatus forms a conspicuous part, will not only be accepted for its useful character, but admired for its artistic qualities. The cover design, executed on celluloid, and partly in color, is a fine example of high class workmanship. A few of the opening and closing pages contain printed matter of varied and useful general information. This handsome memorandum book, which is a credit to the firm issuing it, will be prized and will doubtless find its way into the inside pocket of many a business man.

As will be observed from the announcement made on advertising page eight, of this issue, the Ericsson Telephone Company, of 296 Broadway, New York, is desirous to interest telegraphers as a class in their instruments, with a view of securing among the fraternity throughout the country reliable agents, who will undertake, as a side line, the handling of these goods. By reason of their position, telegraphers frequently have excellent opportunities afforded them to sell telephonic material; many, indeed, have been instrumental at different points in organizing local operating companies, and in otherwise building up a remunerative "hello" business, several already successfully handling the Ericsson goods. To all who may be inclined to engage in business of this nature, which need not necessarily interfere with their regular duties, the Ericsson Company invites correspondence.

Recent Telegraph Patents.

Mr. F. W. Jones, electrical engineer of the Postal Telegraph-Cable Co., New York, has obtained a patent for a telegraph switchboard.

Mr. W. E. Athearn, of the electrical engineer's office of the Western Union Telegraph Co., New York, has secured a telegraphic patent on which static discharges from condensers, instead of induction impulsies from induction coils, are employed to produce a more perfect method of dual transmission than has heretofore been attained.

Mr. John Burry, of New York, has been awarded a patent for a receiver for printing telegraphs. This invention consists of a type wheel having a series of circumferential rows of types, and mounted to rotate in either direction and be shifted in the direction of its length, front or back, and means for moving the same by an electric current and magnets.

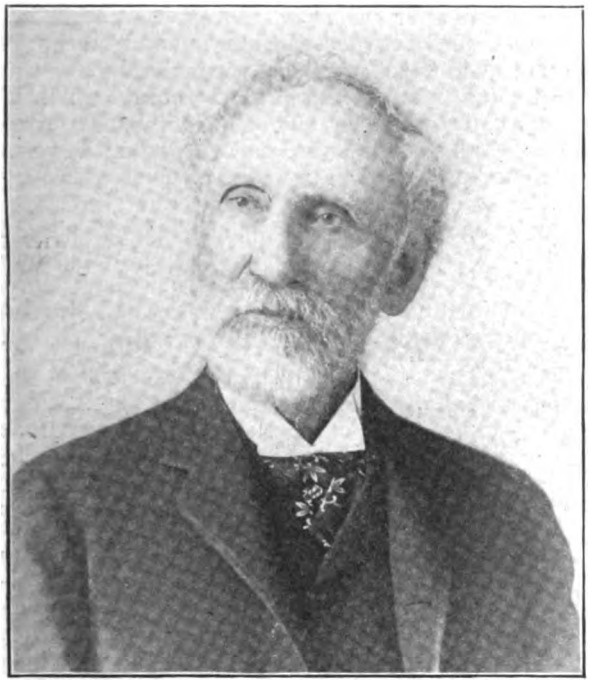
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OUR HALL OF FAME.

ORRIN S. WOOD.

Of the few remaining names that link the past with the present in matters pertaining to the telegraph, that of Orrin S. Wood, now residing in New York city, is deserving of conspicuous mention. He is said to be the oldest living telegrapher. The fact of his early association with Professor Morse, like that of Mr. Reid, is again a reminder that the number formerly holding such personal relations with the inventor of the telegraph is indeed a narrowing one, destined soon, in the nature of things, to pass away altogether. It is a pleasure, however, while such individuals are yet alive, to bring to the notice of telegraphers of the generations who are succeeding them, and to whom the recollection of the past, with all of the great deeds accomplished in the field



MR. ORRIN S. WOOD.

of telegraphic endeavor, is sinking into partial oblivion, to bring up in review the lives of those whose early achievements made possible the advance and conditions of the telegraph of to-day.

Orrin S. Wood, now in his eighty-fourth year, was born Dec. 14, 1817, at Sherburne, Chenango County, New York. He came of a well-known family, several members of which achieved distinction in the world of science, the late M. L. Wood, also a well-known telegrapher, and of whom extended reference was made in the January 1 issue of TELEGRAPH AGE, being a brother.

The first twenty years of Mr. Wood's life were passed quietly on his father's farm. Here he laid the foundation for that sturdy physical strength which, at eighty-three years of age, he declares to be one of his best inheritances; and where, also, under the refining influences of a delightful home, he acquired the no less sturdy rudiments of a grand character, that has ever grown in force and beauty with his advancing and ripening years.

Becoming weary, however, with the work of the farm, which held out no inducements to remain to one of young Wood's forceful character, he engaged for a period of two years in engineering operations on the Genesee Valley Canal. The invention of the telegraph, soon after, and the successful opening of its first short line in 1844, revealing therein the vast inherent possibilities of the future of this wonderful method of transmitting intelligence, awakened an intense yearning in the mind of Mr. Wood to cast his fortunes with the telegraph; to study into and identify himself with the upbuilding and extension of the new system. He accordingly went to Washington, and, in July, 1844, there became a student of telegraphy under Professor Morse himself, on the only line then in existence, extending from that city to Baltimore. For the following nine months he applied himself closely in the effort to master the subject which he had resolutely determined to accomplish. How well he succeeded in this ambition, at the same time gaining the confidence of those about him in his integrity and ability, may be judged by the fact that on March 5, 1845, entrusted with an important mission, he accompanied Mr. Ezra Cornell to New York for the purpose of exhibiting the telegraph to the business men of the metropolis, and enlisting their financial aid in its support.

In this undertaking he was eminently successful, for, in the summer of that year (1845), he was actively engaged in the construction of a telegraph line between New York and Philadelphia. This completed, he built a line connecting Utica, N. Y., with the State Fair Grounds, immediately after which he opened a line between Buffalo and Lockport. All this work, accomplished during 1845, made that year an exceedingly busy one for the young telegrapher, and established for him an enviable and well-deserved reputation for executive ability in his chosen field of life work.

During the winter of 1845-46, spent at Utica, he operated the line between that city and Albany, besides instructing a class in telegraphy. In the spring and summer of 1846 Mr. Wood established the first telegraph offices at Syracuse, Auburn, Rochester and Buffalo, which, with Albany and Utica, opened the previous year, constituted the first six offices worked in one circuit. The New York section of the New York, Albany and Buffalo Telegraph Company was not completed until the fall of 1846, when Mr. Wood came to New York, and opened the first telegraph office in this city. This office was located in the old Post Building on Exchange Place. Here he remained until March, 1847.

The varied experience that Mr. Wood had gained by this time in the carrying out of numerous enterprises entrusted to his care, undertaken frequently under the most adverse and trying circumstances incident to the time, placed him quite in the front rank as an all-round practical telegraph expert, and gained for him a wide measure of faith in and respect for his judgment. It is not to be wondered at that the services of such a competent man should be sought for outside of the boundary of his own country.

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The Montreal Telegraph Company was organized in Montreal, Que., in 1847, with a capital of $60,000. In March of that year Mr. Wood was invited to become its superintendent, a position he accepted, later assuming the general management of the company. This appointment was in every way fortunate for the new company, inasmuch as it placed a man at its head well qualified to undertake the laborious task imposed upon him. For nearly twenty years Mr. Wood remained with this company, superintending the construction and otherwise extending its lines, directing its operation and bringing it up to a high state of power and efficiency. In conducting all of this work he was closely associated with Sir Hugh Allen, a born leader of men, who became the president of the company in 1851.

The first Atlantic cable enterprise, as might have been expected, found an enthusiastic supporter in Mr. Wood, and he, together with Sir Hugh Allen and the late Peter Cooper, became an active trio in aiding Cyrus W. Field in his efforts to establish the line. Although this undertaking resulted in failure, the actual transmission of a few messages demonstrated the possibility of deep sea telegraphy over long distances, and with undaunted courage, Mr. Wood, accompanied by Sir Hugh, visited Europe in 1861, to aid in the promotion of another cable.

The concluding years of Mr. Wood's connection with the Montreal Telegraph Company were passed amid the excitement and disturbing influences due to the Civil War in the United States. The Canadian Government, at that time conducted by the Tory party, had little sympathy with the North, and Mr. Wood, who was a Northern man, and filled with intense patriotism for his native country, was frequently brought into controversy with some of those about him. After the close of the war the ten-year reciprocity treaty that had existed betyeen the United States and Canada, and the term of which had expired, came up for renewal. Its provisions had strongly favored Canada, and the United States chafed under the one-sided conditions. Mr. Wood was requested by the United States Consul General in Canada to give, in writing, his views in regard to the renewal of the treaty. This he consented to do, with the understanding that the letter should be used for private purposes only. The fact of such a letter being in existence, although intimated, was not credited by the opponents of the Consul General, and when it was boldly declared that he held no such expression of opinion, he retaliated by producing the letter. It was so strong in its expressions against the renewal of the treaty and in condemnation of the course of the Canadian Government during the war, which had shown itself bitterly hostile to this country, that its publication provoked a great outcry. Public feeling ran so high against Mr. Wood that he promptly met the emergency by resigning his position with the Montreal Telegraph Company, although strongly importuned to remain by his immediate business associates, who highly valued his services. This was in 1866. From Montreal Mr. Wood went to Milwaukee, where he became actively interested in the building up of the Northwestern Telegraph Company. Here, as well as elsewhere, his peculiar genius for organizing and developing telegraph property asserted itself, and at the end of two years, redeemed and put in fine shape, the property was advantageously leased to the Western Union Telegraph Company for a period of 99 years. This venture proved to be one of the most important, financially, that Mr. Wood had ever engaged in.

For a number of years, dating from 1886, Mr. Wood resided on Staten Island, where, at his home, he dispensed a quiet and charming hospitality, devoting much of his time to charitable work, and where he was, and is still, president of the S. R. Smith Infirmary, the large and beautiful hospital of Staten Island.

This sketch would not be complete without the addition of the following letter addressed to Mr. Otis E. Wood, his brother, of Ithaca, N. Y., and written by Professor Morse when residing at Poughkeepsie:

"Your brother, Orrin S. Wood, was my first telegraph pupil after the first (the experimental) line was established between Washington and Baltimore. He will undoubtedly recollect my predictions at that time for him that, having accepted the enterprise at its very commencement, and made himself thus early master of all that pertained to it, he would have an experience possessed by no other, which would enable him to command any position he might choose, not only one of usefulness, but I believed also of fortune. I am gratified in believing that he has attained a position, at least of well earned competence, if not of fortune, which he richly deserves, for his high and personal character as well as his eminent skill and perseverance."

The Syndicate Newspaper Idea of the Future.

Mr. Alfred C. Harmsworth, the well-known English newspaper publisher, now in this country, and who entertains revolutionary ideas of an extended syndicate newspaper ownership as one of the not only possible, but probable, features of journalism of the twentieth century, has received much criticism for his utterances. In answer to such criticisms a correspondent has this to say:

The press has ridiculed Mr. Harmsworth's idea of the syndicate newspaper for the twentieth century. Are the newspapers averse to the ideas of absorption and consolidation? The reorganization of The Associated Press gives some assurance that no new paper can be successfully established in the large cities. The organization of local news organizations increases the difficulties and expenses of the coalescing of the following interests into a two hundred million corporation:

The International Paper Company, controlling 80 per cent. of newspaper production.

The American News Company, controlling 90 per cent. of newspaper distribution.

The Mergenthaler Linotype Company, controlling 95 per cent. of newspaper composition.

Robert Hoe & Co., controlling 90 per cent. of newspaper printing.

Western Union and Postal Telegraph-Cable companies, controlling 100 per cent. of newspaper telegraph news.

Please remember that one New York daily has a considerable ownership in an Atlantic cable; that

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another New York property controls one publication in San Francisco and another in Chicago, to which it sends colored covers and magazine features and news; that a St. Louis newspaper is vitalized by colored covers and features and news from its New York connection; that a fourth New York paper attempted eight years ago to establish a chain of papers throughout the country on the news exchange basis, and that no New York newspaper is now under nominal individual ownership. The tendency toward concentration will ultimately induce newspapers in various cities to pool their earnings on an agreed percentage, thereby enabling them to curtail expenses upon a theory that thereby they may increase profits without impairing editorial individuality or independence.

One hundred and fifty-seven newspapers of the country have combined in the American Newspaper Publishers' Association for mutual protection. The Scripps-McRae League, owning five evening papers in various cities, has ramifications and indirect interests in twenty other newspaper properties. Many newspapers have combined to stop returns of unsold copies; others have combined to employ special agents for the solicitation of advertising; even advertisers have combined to control prices for advertising.

Four iron combinations are to-day handling a business that one hundred and fifty mills formerly produced. One oil company controls a trade that three hundred individuals formerly conducted. Thirty paper mills are now run by one man. Why, then, should there be any improbability in a consolidation of, say, twenty large newspapers under a common ownership, or under a pooling arrangement which insures to such of them a given percentage of the advertising revenues of a given territory? Mr. Harmsworth has seen these things and has made natural deductions. The public that was expected to boycott department stores may be relied upon to buy and to use newspapers that give the best returns for their money regardless of any hostility to combinations.

Wants a National Telegraph.

Sir Sanford Fleming has addressed a long letter to William Mulock, Postmaster-General of Canada, in favor of a telegraph service to girdle the globe and owned by the State. The letter is said to be the beginning of a movement in Canada to nationalize the cable and telegraph service of the empire. The matter, the writer says, affects Canada as well as Australia.

The arrangement for the establishment of the Pacific cable has been completed. The arrangement implies joint ownership, and in the opinion of Sir Sanford it is the harbinger of a complete system of State-owned telegraphs by land and sea. With the telegraph system nationalized as suggested, Sir Sanford says that messages will be transmitted to and from the most distant British possessions at one-eighth or one-tenth the rates now levied by the companies. In concluding his letter the writer says:

"British subjects in Canada, in Australia, in New Zealand, in India, in Africa, as well as in the mother country, must unite in securing complete emancipation from the grasp of the great 'cable combine.' At the threshold of the twentieth century high imperial interests demand the cheapest possible telegraph transmission and the greatest possible freedom of intercourse between all the subjects of her Majesty domiciled around the globe. I respectfully submit, therefore, that action cannot be taken a day too soon to nationalize our telegraph system by land and sea throughout the whole empire."

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; price, $1, reduced from $1.50.

"AMERICAN TELEGRAPHY," by William Maver, Jr., enlarged and improved; 600 pages; 475 illustrations; clear, lucid and comprehensive in its treatment of the subject, the ranking work of of its kind, and of high practical value to every telegrapher; bound in cloth; price, $3.50.

"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume, of which but a few copies of the first edition now remain, presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; price, $5.

"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones, 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

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An Interesting Reminiscence of a Military Telegraph Operator.

Not the least interesting or thrilling experience of all those who are active participants in warfare is that of the military telegrapher. While he does not carry a musket or sword, he is nevertheless oftentimes thrown in perilous positions where his sense of duty compels him to meet the fire of the enemy rather than flee for safety. His fidelity to his superiors has frequently been demonstrated, and when the record of wars is finally made up much greater credit will be given the boys who remained at their instruments when bullets and cannon balls were flying all around them than was conceded during the period of hostilities.

Mr. Charles W. Hammond, of St. Louis, Mo., and superintendent of telegraph of the Missouri Pacific Railway, in speaking of his telegraphic experiences during the Civil War, said:

"My service in the United States Military Telegraph Corps commenced in the early part of June, 1861, shortly after the Camp Jackson affair. I was located at the arsenal, St. Louis. Times were very exciting then. Southern sympathizers were much enraged over the Camp Jackson episode, and any person wearing the blue uniform was a marked man. I met and messed with officers at the arsenal, some of whom are now famous in history, notably Generals Lyon, Blair, Harding, Granger and Schofield. I was particularly impressed with Gen. Francis P. Blair. He was vigilant and zealous quick of perception, quick to act—in fact, one of those men whom God creates for great emergencies and crises. He was patriotic and thoroughly unselfish. I happen to know that he was offered the command of the department, but he generously and emphatically declined in favor of General Lyon.

"For two months I was military telegraph operator at Gen. John C. Fremont's headquarters at the Brant mansion, on Chouteau avenue, St. Louis. When General Fremont was superceded I went to Cairo, and up the Tennessee River to Fort Donelson. Upon my arrival there I saw General Logan for the first time. He was then suffering greatly from his wounds received in the famous battle, which had just taken place. An Iowa colonel loaned me his horse for the purpose of inspecting the telegraph wires in the vicinity of Fort Donelson. The horse was a magnificent animal, and a great jumper. It seemed to me that he could almost scale anything. One morning I was riding him at a pretty swift gait, when in jumping a fence the saddle girth broke. Of course, I fell. I must have been unconscious an hour. When I came to the horse was standing over me, with his nose against my face. He seemed to know I had been hurt, for as soon as I opened my eyes he neighed his appreciation of that fact. While before the accident he had been spirited and prancing, after I remounted him he was as quiet and sedate as an old stager. It was the most striking exhibition of animal intelligence I ever witnessed.

"The morning after the memorable naval engagement between the Merrimac and the Monitor I was sitting at my instrument when the joyful news of the result commenced coming in. General Logan, General Oglesby, Col. Philip Fouke and others looked over my shoulder, reading the message as I wrote it down. We tried to keep it quiet at first, but somehow it got out, as all good news will, and it wasn't long before all the officers and soldiers were gathered around. General Logan stood up on a box and announced the glad tidings. I shall never forget the scene. Cheers rent the air. Officers and men hugged and kissed each other. Logan and Oglesby were almost beside themselves with joy, and were as boisterous as any of the men.

"From Fort Donelson I was sent to Pittsburg Landing (Shiloh). There I served in erecting and operating field lines to Corinth, until we occupied it. From Corinth I was sent to rebuild the line along the Memphis and Charleston Railroad to Tuscumbia, Ala., during which time I made the acquaintance of Gens. Thomas J. Wood, William Nelson and D. C. Buell. I was never more scared in my life than when I called on General Nelson for an order on his commissary for something to eat. The General flew into a rage and denounced me as 'a hanger on' and 'camp follower,' and one of the 'dogs of the war.' He abused me so that I felt my hair turning gray and made my retreat as speedily as possible. Then I determined to starve rather than accept any of his bounty. In rebuilding this line to Tuscumbia we had some thrilling experiences. We had a party of ten men on hand cars. The rebels had burned the bridges and torn away the rails in many places, and it seemed an age for us in getting through. Once we were chased by a band of guerrillas, about forty in number, for several miles, but fortunately no rails were torn up there and we succeeded in getting away from them. When I finally reached Tuscumbia and connected my instrument I ascertained that our friends had given us up for dead. They were rejoiced to hear that we got through alive.

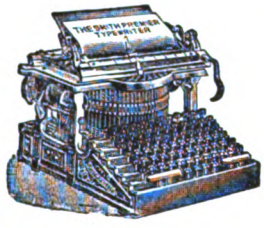
"At Burnsville, Miss., we stopped in a vain endeavor to get something to eat, but our ability as foragers was not equal to that of the soldiers, and our success in that expedition was very inadequate indeed. There I saw a widow, who asked me for a piece of ice for her only son, who had been wounded. Luckily I had a little, and gave it to her. Such a look of inexpressible gratitude as that woman gave me! Her face was radiant with gratitude. I saw the boy, a lad of about fifteen summers. The pallor of death was already upon his face. He soon died. I was glad it was my privilege to do something in that sad case. I could not but realize the desperation of our opponents, who, in recruiting their armies, 'robbed the cradle and the grave.'

"We arrived at Iuka, Miss., tired, lame and hungry. General Wood treated us royally, providing for us bountifully out of his own stores. He gave us fine, light biscuits, like our mothers used to make—the first biscuits we had eaten for months. When General Wood appeared, wearing a large Panama straw hat, one of my men, a big Irishman, yelled: 'There goes ould Gineral Wood wid a cow's breakfast on his head.' The remark nearly convulsed the General."

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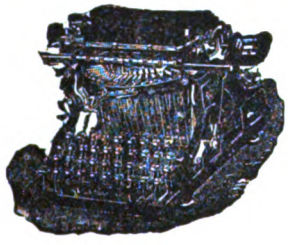
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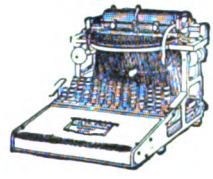


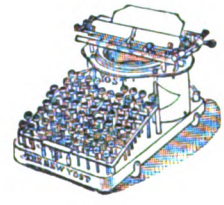
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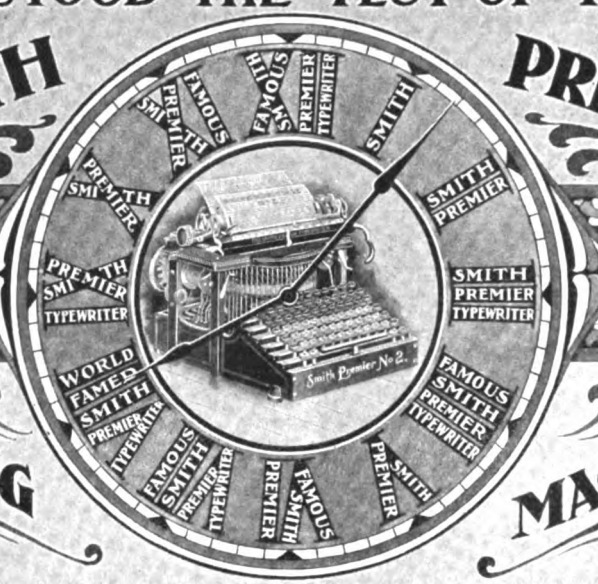
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CHANGES OF ADDRESS.—The address of a subscriber will be changed as often as desired. In ordering a change of address the *old* as well as the *new* address *must* be given.

NEW YORK, January 16, 1901.

To Subscribers.

Editor TELEGRAPH AGE:

Your editorial, "As to 1901," published in the issue of January 1, has stimulated your correspondent to special activity, and with what result the enclosed test of subscription renewals, together with a money order therefor, shows.

Now, Mr. Publisher, I have on my long list of subscribers the names of a good many who are slow pay; good enough, perhaps, yet giving me no end of trouble to collect from, the money frequently forthcoming only after months of weary dunning. They just make me tired. You look to me for a prompt collection of these accounts, and the exasperating delay keeps me worried and on the anxious seat. I will do the best I can, however, to effect an early collection of these subscriptions, as you desire; but I wanted you to understand the situation exactly.

* * * *

* * *, January 10, 1901.

We publish the above as a type of letter that unfortunately reaches us with too great frequency. The subscription price of TELEGRAPH AGE is not excessive, and it is not too much to expect that subscribers should meet the modest sum required with considerate promptness. It is not the single individual who may be in arrears that causes trouble; it is when the number is multiplied many times all over the country, and the aggregate amount thus becoming due assumes large and serious proportions. A little reflection on the part of our readers who have grown careless in this respect, should suffice to show them to what an extent TELEGRAPH AGE is made to suffer by their thoughtlessness.

The expenses of this journal, always heavy and constant, would be met much more easily if each individual subscriber would promptly meet his or her subscription as it becomes due. Subscribers surely are receiving regularly the full value of their money, thus showing faithful performance toward them on the part of TELEGRAPH AGE. The obligation is a mutual one, and we trust this reference to the matter will be all that is necessary, not only to check, but to overcome an evil that has been allowed to assume too great a magnitude.

The New York Post Office Scandal.

The serious nature of the delay in the mail service in the New York post office has become of such magnitude as to cause widespread complaint and to awaken just indignation on every side. The trouble appears to affect all departments, even the registered mail—where one naturally looks, if not for added speed in delivery, at least for extra care in its transmission—being no exception. Instances multiply in which registered packages have been held in the office for several days, in some cases a full week, before being sent out, even. This delay worked especial hardship during the holiday season just passed, and is causing no end of trouble to many business men who constantly employ the registered mail for the forwarding of certain classes of goods. Complaints are constantly reaching this office from buyers of books, etc., of the non-delivery of their purchases by registered mail, although sent by us in good faith on the date of the receipt of the order, often a week or ten days before, and for which we hold receipts. Inquiry at the post office regarding these cases revealed the astounding fact that not only had the packages not been forwarded, but that many bags of accumulated registered matter were lying unsent in heaped up piles on the basement floor of the post office!

The explanation of this unfaithful and disgraceful state of affairs, permitted in one of the most important of the great departments of the Government of the United States, is that the facilities for handling the mails are inadequate both in required floor space and clerical force. While this is doubtless true, such an explanation is in effect a terrific arraignment of the Post Office Department and of the Government itself. It reveals a scandal of the first magnitude, and all the more glaring because vitally affecting the efficiency of the chief postal center of America, the point of earning capacity that practically makes the postal service of the country possible.

The New York post office is located on Broadway, less than three hundred feet distant from the office of TELEGRAPH AGE, yet it requires nearly a week's time for the transit from that office to this of a copy of our own paper from the date of its mailing.

Arguments for Private Pacific Cable.

Apropos of what has already been repeatedly stated in our own columns regarding the Pacific cable, its construction, ownership and governmental interest therein, is well summed up by the Washington correspondent of the Brooklyn Eagle, who, after careful investigation of the entire subject, writes to his paper as follows:

"Notwithstanding the apparent intention of Con-

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gress to let Pacific cable legislation rest for the time being, potent influences are at work to secure the passage of some bill before the adjournment of this session which will authorize the construction and laying of a cable to connect the United States with the Hawaiian and Philippine Islands. As stated recently, there has been nothing to indicate that such a measure would get through at this session and that the complicated status of the various cable bills made it quite probable that adjournment would occur before action was had. Additional facts to show the advantage of a cable built by private contract have recently been placed in the hands of those who favor the plan of having the government build and lay the proposed cable. The published statement that the House committee on interstate and foreign commerce favorably reported the Corliss bill, providing that the government should have control of this project, was incorrect. In reality, the committee report embraced the views of four elements in the committee. The majority report favored the Sherman bill, proposing that the contract for the cable should be let to an American company and that the government should pay to this company $30,000 per year for twenty years for the free transmission of its messages during that period. Three members of the committee indorsed what is known as the Corliss bill, which authorized the government to build and lay the cable under the direction of a commission to be appointed by the President. Four other members of the committee merely refused to concur in the recommendations of the majority of the committee and failed to express preference for any special bill. Still another report was submitted, signed by Mr. Mann, proposing a compromise on the plan outlined in the Corliss bill. The advocates of an American cable built by private enterprise still insist that the government will fail if it attempts to establish the cable for the amount of money which Admiral Bradford says will build it. The latter is on record as saying that $10,000,000 will build such a cable, while the other side contends that a duplicate cable would involve the expenditure of at least $20,000,000. It is contended that the survey of the Pacific for a cable route made by the Nero did not afford data sufficiently reliable to warrant the laying of a line, and that further investigation would have to be made in regard to depths, bottom, etc. Opposition to the government plan is further developing from those who are concerned in the $200,000,000 of American capital now invested in telegraph property, all of which would be affected by a government line doing commercial business."

The Pacific Cable at Last—But British.

It is officially announced by the Colonial Office, in London, that the Pacific Cable committee have accepted, on behalf of the English government and of the governments of Canada, New South Wales, Victoria, Queensland and New Zealand, the tender of the Telegraph Construction and Maintenance Company, of London, for the manufacture and laying of the projected Pacific cable. The amount of the tender is $8,975,000, and the work is to be completed by the end of 1902. The cable will run from Vancouver, B. C., to Queensland and New Zealand, *via* Fanning Island, Fiji and Norfolk Island. The total length of cable will be considerably over 7,000 miles, and the stretch from Vancouver to Fanning Island—approximately 3,500 miles—will be the longest cable in the world. The section from Fanning Island to Norfolk Island will be about 1,700 miles, from Norfolk Island to Brisbane 800 miles, and from Norfolk Island to the coast of New Zealand 500 miles. In all the earlier British Pacific cable schemes Honolulu was selected as the landing place of the first section, but on the annexation of the Sandwich Islands by the United States this was, of course, impossible, seeing that the cable was "all-British." The contingency of American ownership of the Sandwich Islands was, however, foreseen as far back as 1888, and in order to provide against it Fanning Island was in that year annexed to the British Empire. The new Pacific cable, which will form the longest link in the all-British telegraph route to the greatest of the British colonies, is the most important undertaking of the kind ever carried out under a single scheme. The other long-distance cables were mostly carried out in sections from time to time, as the necessities of commerce demanded. The exceptions are the trans-Atlantic lines and the recently laid cable from the Cape *via* St. Helena. In length the Pacific cable will be the longest direct wire in the world, as it will cover a distance of nearly 9,000 miles in all. The manufacture of such a vast line is in itself a big task, and will occupy the greater portion of the time allowed for the establishment of communication. The actual work of laying these long cables is by no means so difficult as it was in the days when the Great Eastern steamed across the Atlantic with the first American cable. Improved methods and machinery have reduced what was formerly a most serious undertaking, accompanied by much risk of failure, to practically mathematical certainty.

Value of Telegraphy.

Telegraphic communication and its value was recently illustrated by the receipt by mail at Washington of a copy of a telegram from Fort Egbert, in the Yukon Valley, Alaska, below Dawson City. The telegram itself came by wire to Skagway, thence by steamer to Seattle, and to Washington by wire, reaching the Signal Corps office in that city four days from its writing. On one other occasion, by making better sailing connections, a record of three days was established. The mailed copy required forty-three days for transit. A few years ago the United States spent over $200,000 on an expedition to carry relief to alleged sufferers in that country. The Signal Corps officers point out that all of this sum, besides much hardship to those on the expedition, could have been saved had such telegraphic means been in existence at the time.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.

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Progress of the Century.

In 1800 communication between remote points was only by mail, and the mail was slowly carried by post horses and sailing vessels. To hear from friends in Europe required many months of delay. To-day we communicate with Europe by cable in a fraction of a minute and talk over the telephone with friends a thousand miles away. In 1844 the first line of telegraph was built, under the direction of Prof. Morse, between Baltimore and Washington, by special appropriation of Congress, and the first message over it—"What hath God wrought"—was prophetic of a mighty revolution in the world's life. To-day one great company—the Western Union—has 933,153 miles of wire, 22,900 offices, and in the current year sent 63,167,783 messages. Add to this the equipment and business of the Postal Telegraph-Cable Co., and the total would be 1,108,153 miles of wire, 25,900 offices and 80,667,783 messages. Even these figures must be increased somewhat by small companies, the fire-alarm and the district messenger service, while submarine cables to the number of 1,500 add 170,000 miles of line and 6,000,000 messages annually in extension of the business of the United States. It is appalling to think how helpless we would have been in our campaigns in the East, and how little hope there would have been for the lives of our compatriots in Pekin, had there been no cable. The telephone, invented by Prof. Bell in 1876 and immediately introduced, utilized in 1899 in the hands of one parent company a million and a half instruments and over a million miles of wire, and in that year more than five million connections were made daily. The telegraph and telephone are the great distance annihilators and time-savers of the nineteenth century, and enter into the life of almost every other industry. They are both American inventions.

In the electrical world progress has been made chiefly along familiar and well established lines during the past year. Considerable advance has been made in telephony and telegraphy, and more particularly that branch of the latter which is associated with the name of Marconi and his fellow workers. Marconi's efforts have been directed more to synchronizing his messages and constructing a transmitter, the messages from which can be recorded only by the apparatus which has been tuned to receive them, and he appears to have successfully solved the problem. The Pollak-Virag rapid electric and photographic telephonic system is reported to have given phenomenal results, notably in a test between Berlin and Ofen-Pest, when a message of 220 words was transmitted in nine seconds, but the development of the sensitive paper requiring between four and five minutes. Another most important development is to be recorded in Dr. Pupin's system of long distance telephony, in which, by the introduction of inductance coils, it is possible to make an extraordinary increase in the distance over which telephonic messages may be sent. Dr. Pupin established the correctness of his theories by means of 250 miles of artificial lines arranged with inductance coils. Another notable contribution to telegraphy is that of Donald Murray, an Australian inventor, whose high-speed page-printing telegraph, an invention that has been purchased by the Postal Telegraph-Cable Co., has shown a capacity, with the Morse telegraphic key, of fifty words, and using the Phillips code, of sixty-five to seventy words per minute. The Paris Exposition served to introduce to the public the Poulsen telephone, in which magnetic pulsations are caused to act upon a steel wire, and the magnetization as thus effected is conversely caused to act upon the telephone receiver and to reproduce the original sounds.—Scientific American.

Two Miles of Wires for One Dollar.

Two miles of wires, said to belong to the Postal Telegraph-Cable Company in the town of Union, Hudson county, N. J., were sold at auction December 28, for taxes amounting to $151.70, which it is claimed the company owes. The wire, which is strung on poles of the Hudson Telephone Company, was knocked down for $1 to Charles Singer, town clerk of Union, who bid personally and not as an official.

When asked if he was going to start a new telegraph company, Mr. Singer said he guessed not, but was in a peculiar position. He said: "The wires are mine. I have paid for them. The township in accepting my money placed itself in a position where it is bound to deliver those two miles of wires where I can take possession of them. If it does not, it seems to me I can sue the town for breach of contract. Just how the town is going to deliver the goods to me I cannot say. The Postal wires are somewhere amid a big maze of telephone company's wires. It seems to me it will be necessary for the town to find out which wire belongs to the Postal Company. To do that it will require the use of experts, not only as linemen, but who can tap the wires to see whether dots and dashes or spoken words are passing over them. To ascend the poles of the telephone company would be trespass. To cut a wire which is not yours is a criminal offense; hence, if in searching for my wire the men cut a telephone wire their fate would be state prison or the penitentiary at least. I don't see how the town is going to deliver that which I have paid for, but I am considering the advisability of offering the telegraph company the use of the wires at a nominal rate and let them stay where they are."

THE TELEGRAPHIC HISTORICAL SOCIETY OF NORTH AMERICA. A pamphlet of 32 pages, containing a report of the proceedings of The Telegraphic Historical Society of North America at the annual meetings of 1898, 1899 and 1900, the first two held at Washington, D. C., and the latter in New York, has been published. Mr. J. B. Taltavall, the secretary of the society, has had charge of this compilation and it presents in carefully arranged form much matter of a nature that will be of interest to a wide circle.

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PARCEL POST AND GOVERNMENT TELEGRAPH.

BY JOHN DOUGLAS KING,
Chief Inspector New York Post Office, in the New York Herald.

Just one hundred years ago this year the first post office directory was compiled in England. At that time, both here and abroad, letter writing was an expensive pastime. The postal rate depended on the mileage, whether by coach, pony and boy or pigeon. It cost six times as much to send a letter to Albany from New York as it now costs to Alaska.

And yet I foresee great improvements in the service, for not only is the end not yet, but all that has been accomplished I believe to be a fair beginning. Other countries are leading us in many ways. For instance, take the parcel post, which has proven such a success in England and on the Continent. The service has been very cheap and efficient under wise administration; and early in the twentieth century I predict that America will have added this important branch of parcel post.

Another great opportunity for improvement is the postal savings bank, which is such a grand measure for the protection of the poor of all Europe.

And this naturally leads to the adoption of the sister enterprise of the postal service, the telegraph. Government ownership of the telegraph has proven in European countries a very wise measure, and I predict its adoption here. More than that, I doubt not that before the century closes there will be United States government cables to all parts of the world, in conjunction with the government mail and telegraph system, so that all means of communication will be in government hands.

I even think that the vast volume of business will admit of a reduction in the postage to one cent per half ounce instead of two and all rates corresponding.

We transmit mail at a furious rate under ground and above ground. Why not also through the air? After such a marvelous century as the last has been, who dares say what shall not be accomplished in the coming one?

I believe further that during the coming year the pneumatic tube system will be utilized in carrying the mails from post offices directly to business houses, banks, hotels and professional men. Thus upon the arrival of letters for such firms at the post office the same will be dispatched immediately to the addressees.

From Operator to Strike Leader.

M. M. Dolphin, president of the Order of Railway Telegraphers of North America and leader in the strike of the telegraph operators on the Santa Fé, is an interesting character, says the Kansas City Times.

He has worked his way to the top, and the fact that he is a self-made man is probably the reason everybody likes him Ask any one who knows Dolphin for an opinion of the man and he will say: "Dolphin is a good fellow, a great fellow. If he's your friend he'll die for you."

Ten years ago Mr. Dolphin was a night operator in the telegraph office in the Union Depot in this city. There was not much to do after the midnight hour, and Dolphin secured a few law books, which he began to study. He was admitted to the bar about eight years ago, and soon after was sent as a delegate to the annual convention of the telegraphers, which was held in Denver.

Dolphin was the only lawyer in the convention, and, charges having been preferred against the president of the order, he was asked to represent the order in the prosecution of the charges. He made such a good impression that he was elected first assistant grand chief at that convention. Four years later he was made general counsel for the order, and was also elected first vice-president of the organization at its recent convention in St. Louis.

Dolphin came into prominence about four years ago when he prosecuted a suit against the Union Pacific Railway Company. For years this corporation had been making a regular monthly assessment on all its employes, which was devoted to a hospital fund. The railway company never gave an accounting for this money, and Dolphin, on behalf of the employes of the road, brought an action in the United States Circuit Court of Omaha to compel the railway officials to account for all the money that had been collected and to make a statement as to the amount of money that was then placed to the credit of the hospital. It developed that there was a surplus of $175,000, and the United States Court rendered a decision compelling the railway company to return this money to the men who had been forced to donate it. An appeal was taken to the United States Circuit Court of Appeals, and the decision of the lower court was affirmed.

There is a story told of Dolphin in connection with this case. After he had won it he presented a claim of $1,500 for attorney's fees. He was allowed $700, and went before Judge Caldwell and asked for more.

"I think $700 is a reasonable fee for a young man like you," said the judge.

"I don't think so," replied Dolphin. "This is one of the greatest courts of justice in the world, and the judge of this court should be one of the most dignified judges in the world. He must be a recognized authority on all legal points. A lawyer who practices in this court has to be an able man in his profession. Therefore, I think an attorney who would accept a fee of $700 for prosecuting a suit in this tribunal would be subject to contempt of court, and ought to be fined."

The blarney won the point, and Dolphin got his fee raised.

The annual report of the Board of Regents of the Smithsonian Institution, Washington, D. C., for the year ending June 30, 1898, has made its appearance. It is a large volume, illustrated, of over 700 pages, and, in addition to the secretary's full report, contains a large amount of miscellaneous matter, much of it of a highly interesting, scientific and geographical nature.

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THE TELEGRAPH.

BY PATRICK B. DELANY.

Although the electric telegraph had been hinted at a century or more before, it may be said that Morse, of America, and Steinheil, of Bavaria, began Morse in 1837 made his first demonstration at the almost simultaneously to make a practical method, University of New York over a third of a mile of wire strung around a room, and a year later, with the help of the superior science of Joseph Henry and the mechanical skill of Alfred Vail, ten words per minute were transmitted over ten miles of wire at the same place. Henry, it must be remembered, rang an electric bell through a mile of insulated copper wire, similarly strung, seven years before. Morse began with what might be termed a short line recorder, using combinations of dots requiring a code book for preparing and transcribing messages. Henry had invented the long line instrument, Vail conceived the embossing register and, with or without Morse's help, supplied what is known to-day as the Morse code of dots and dashes.

Upon this foundation the system grew, until six years later, when the first practical telegraph in this country was put in operation between Baltimore and Washington.

The apparatus was crude and clumsy, but all the elements essential to success were there. In fact, about all that has been done to the Morse apparatus since has been by way of refinement and cheapening. The sounder has taken the place of the recording instrument and the trained ear and nimble fingers of the operator have raised the possible speed from ten to fifty words per minute, the average being below twenty, however.

After the Morse came the House printing instrument, which, considering the time, was by far the most ingenious combination of electro-magnetic-mechanical effects ever produced, and compared with which the work of others appears very simple.

After this instrument had been perfected and put into successful operation the inventor went back to his farm in Vermont, and after twenty years or more emerged from his seclusion with a wonderful conception which he had thought out in the furrow as he followed his plow, and worked into shape when the candle was low. He brought this machine to Brooklyn seventeen or eighteen years ago and showed it in experimental operation. The patents covering it have been "bunkers" in the game of telegraph invention ever since, affording at the same time a convenient "reference" for the Examiner at Washington for suppression of over enthusiastic inventors in this field. It is easier for the inventor to contrive a new departure than to argue House's "references" with the Examiner, neither of them having any clear understanding of its operation.

House's new machine was designed to operate on a selective plan and drop off printed messages at any station desired at a speed of about sixty words per minute, and to lock stations in and out of the line obediently to the operator's will. He invited his old contemporary, D. H. Craig, to witness the operation of his machine.

Craig saw it, and then took House over to the American Rapid Company's office, in New York, and showed him how messages were being sent between New York and Boston at several hundred words per minute. The old inventor soon after packed up his symposium of intricacies and went back to his farm. He died at Bridgeport five or six years ago, having worked half a life time with marvelous genius, apparently oblivious to the strides of improvement abroad in the land.

Hughes printer has been extensively used for about out of use Hughes brought out his printing telegraph, in a measure a modification of House's machine, and this was followed later on by Phelps' combination of the two, but the more simple and comparatively inexpensive Morse system usurped the field in this country.

In Europe, on the Continent especially, the Hughes printer has been extensively used for about thirty years and brought fame, fortune and honors to its inventor, whose most noteworthy achievement besides was the discovery of the microphone.

In England Cook and Wheatstone were pioneers in practical telegraphs. The A B C dial instrument, the single and double needle, and the fittest survival of the lot, the Wheatstone automatic system, which to-day is carrying all the press matter and a good portion of the regular traffic for the British post office, are good testimony of the genius and industry of these co-workers.

About 1868 J. B. Stearns, of Massachusetts, duplexed the Morse system, making one wire about equal to two in carrying capacity. A year or two later Edison invented the quadruplex, and had this been the only achievement of his fertile brain it should entitle him to everlasting distinction. This quadruplex system is used most extensively in this country and England. According to a statement made several years ago by the late Norvin Green, at the time President of the Western Union Telegraph Company, the artificial or "phantom" circuits, created by the quadruplex, represented in value over ten million dollars to that company alone.

In 1884 the Delany synchronous multiplex system was perfected. It has not been used in this country, but was adopted by the British post office in 1885 and has been extensively used on all the leading routes in that country up to the present time. By it six Morse circuits are obtained over a single wire and all may be worked in one direction, if required, the circuits, unlike the quadruplex, which permits but two transmissions in one direction, being as independent of each other as though six wires were used.

The Morse, Wheatstone and Hughes may be said to do the world's telegraphy at present. Each has been improved from time to time, both as to speed and distance of working, and the improvement in lines has contributed largely to their increased efficiency as well.

All these systems are based upon electro-magnetic effects. Without the electro-magnet not a single dot could be sent over land or sea nor a

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single word spoken by telephone. Even the wireless system of Marconi is dependent on Oersted's discovery. It disclosed the foundation for all electrical development, of which the telegraph was the forerunner.

Until Steinheil discovered that the earth would answer for the return half of the circuit he and Morse used two wires—one for sending, the other for receiving messages. Steinheil, in trying to utilize the two rails of a railway, found his transmitter short-circuited, and when one of Morse's wires, between Washington and Baltimore, broke down, he found that work went on just the same.

Up to 1876, when Bell exhibited his telephone at the Centennial Exhibition, no one dreamed that the telegraph would ever have a competitor in the field of electrical communication. Indeed, for several years after the telephone became a far speaker it was snubbed and scorned by the telegraph magnates. It was offered to them, lock-stock-and-barrel, for less than the price of a good race horse, but overconfidence begotten of monopoly, and prejudice allied to short vision, forced it to set up for itself. Its growth is known to everybody.

This invention by Bell and the wireless system of Marconi stand as the two great departures in electrical communication since Miss Ellsworth's message, "What God hath wrought." Like Morse, Bell and Marconi have had their forecasters—purveyors to the architects, as it were.

The state of the art of electrical communication to-day may be summed up as follows:

Telephony	60 words per minute
Single Morse Circuits	15 words per minute
Duplex Morse Circuits	30 words per minute
Quadruplex Morse Circuits	50 words per minute
Multiplex (six circuit)	80 words per minute
Wheatstone Automatic	125 words per minute
Wheatstone Automatic Duplex	200 words per minute
Wireless	10 words per minute

These facilities, keeping in mind the restrictive charges, are ample for the amount of traffic offered. Increase of business can only be handled by increase in the number of wires, but this condition and its continuance falls far short of the legitimate demands of the present, and offer no relief for the future.

The present systems will not admit of any material reduction of rates. The average 30-cent 10-word telegram, and the dollar per hundred miles five-minutes' talk by telephone, under most careful management and present capitalization, will not yield over 5 or 6 per cent. dividends. Thus far the telephone has derived its great profits from local exchanges and rental of long circuits for private use. The private line business of the telegraph companies is to them the most profitable also. Combined, the telegraph and long-distance telephones do only about 5 per cent. of the correspondence numerically, and probably not more than 2 per cent. in volume, and their total yearly earnings (exclusive of local exchange business) is less than one-half the amount realized by the post office from the sale of stamps for first-class matter.

Letters average about 30 for each inhabitant. Postal cards 7. Telegrams 1½.

Undoubtedly before the new century is ten years old, at least one-half of the correspondence, now carried by train, will be telegraphed, at an average rate for the whole country of 15 cents for 50 words, or five times as many words for one-half the present telegraph toll.

It is practicable to begin this change at once, but not by present methods of operation. It is only possible by the chemical automatic system.—Electrical World and Engineer.

(*To be continued.*)

CABLE MANUFACTURE IN THE UNITED STATES.*

BY WM. MAVER, JR.

The metal used for the conductors of underground electric cables is copper. Practically the only rival of copper for electrical purposes, outside of iron for overhead telegraph lines, is aluminium. This rivalry, however, extends only to overhead wires where the matter of diameter of the wire is not very material, the diameter of an aluminium wire being 1.27 times greater than that of a copper wire of equal conductivity. The weight of an aluminium wire, on the other hand, is one-half that of a copper wire of equal conductivity. At the present price of aluminium, which is slightly less than one-half that of copper, it would, therefore, be economical to use aluminium wire for overhead purposes, and this has been done recently in several instances. For underground purposes, however, it would seem that the greater diameter of the aluminium wire for a given conductivity must place it at a disadvantage, as compared with copper, on account of the greater amount of insulating material and lead required to cover the aluminium wire. The increased space that the latter wire would occupy in the underground ducts, where space is often quite a serious consideration, is also a disadvantage.

The process of manufacture of the cable may be taken up at the wire factory, where the copper is received in billets, or ingots, weighing about two hundred pounds, which are first rolled into rods by rolling machines or mills. The ingots while red hot are passed through roll after roll, the rolls gradually reducing the wire to a desired size. In the first stages the rods are passed back and forth by men on each side of the mills, but as the rod increases in length and diminishes in diameter, it is passed from one set of rolls to another by curved guides. These rolls will break down fifty tons of copper per day of ten hours from the ingot to a rod or wire equal to No. 5 B. & S. gauge (No. 7 B. W. G.). This process, however, does not leave the wire as uniformly round as desired; hence the rods are usually subjected to a "drawing" process, which consists in drawing the wire, while cold, by means of suitable machinery, through dies of hardened steel. It is usually necessary to repeat this drawing process several times with dies of gradually

*Abstract of an article on "Electric Cables for High-tension service, How They are Made and Tested in the United States," in Cassier's Magazine.

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diminishing diameter, until the desired gauge of wire is finally reached. The drawing process hardens the wire and also materially increases its strength; at the same time it renders the wire less pliable. The strength of the copper wire thus hardened appears to rest very largely in a thin shell formed by the drawing process, for when the shell is nicked, even if only very slightly, the wire breaks readily at that point. Before each drawing the wire is covered with flour paste, baked on the wire in an oven. This acts as a lubricant while the wire is passing through the die. When the wire has been drawn to the desired size, it is annealed to the required degree of softness and pliability by heating, the extent of the annealing depending upon the use for which the wire is designed. For the conductors used for overhead telegraph and telephone purposes, it is not annealed after the final drawing, or but very slightly, and this wire is termed "hard-drawn." But for larger wires, such as No. 00 or No. 0000 B. & S. gauge (0.364 inch and 0.460 inch diameter, respectively), the wire is always "soft-drawn." The wire used in cables is always soft-drawn, regardless of the size, to insure flexibility.

The wire being thus reduced to the desired diameter, the treatment which it will next undergo will depend on the nature of the insulating material with which it is to be covered. If a rubber compound is to be used, the wire will be tinned, it being supposed that this is a protection against any possible deleterious effects of the sulphur used in vulcanizing the rubber. The tinning is effected by passing the wire through a vat of molten tin. When the insulating material is fiber or paper, the wire is not tinned.

The wire is now practically ready for use in the cable. There is, however, another matter to be considered first; that is, whether the conductor of the cable is to be "solid" or stranded. When the diameter of the conductor does not exceed 0.257 inch diameter (No. 2 B. & S. gauge), the conductor is usually solid; that is, it consists of one wire. Above this size the conductor is stranded, chiefly to obtain greater flexibility of the cable.

The work of stranding the wire is usually done in one process. The wires of the strand are wound on reels, which are placed on suitable spindles, on frames around the stranding machine, the reels for each layer of wires being in the same circle. The circle of reels for each layer is, of course, placed a suitable distance behind or before its neighboring circle, the reels for the larger layers being, naturally, behind those of the smaller. The center wire of the strand passes from its reel, which is stationary in one place, and is held taut by a take-up drum or reel. The wires of the first layer are wound around this wire, and the wires of the second layer are wound snugly around the first layer, and so on, the reels of contiguous layers of wire being caused to revolve with their respective frames in opposite directions, which gives the respective layers of the strand a right and left-hand lay. Machines for such work may be designed to carry one hundred and thirty reels of wire, weighing 1,000 pounds each.

As previously remarked, the insulating material of high-tension cables is now either a rubber compound or paper saturated with a resinous oil. Gutta-percha, which has been used so extensively—in fact, it may be said, exclusively up to this time—as the insulating material for long submarine cables, is not used at all for high or low tension cables in cities, its low melting point, about 120° F., being fatal to its employment for such purposes, inasmuch as this temperature is frequently encountered in city streets. Indeed, a temporary overload of a conductor might raise the temperature to this point, in which event the conductor would settle to the lead armor or sheathing of the cable, thereby, of course, ending its usefulness.

The pure rubber used in the rubber compounds employed as an insulating material is brought to the factory in balls, which weigh from five pounds to sixty pounds. While this is termed "pure rubber," it is quite impure in a strict sense, and during the purifying process it undergoes a shrinkage of about 20 per cent. The first step in its preparation consists in soaking for about twelve hours in water at a temperature of about 200° F. or 212° F. After undergoing this boiling process the ball is passed through corrugated rolls or mills, by which the rubber is pressed into a thin rough sheet about the size of a sheep's hide. As the rubber is thus passed and repassed through this mill streams of water are caused to fall upon it, washing away the impurities which the roller exposes. After the sheets have been thoroughly washed they are taken to a drying room, where they are usually kept for two, three, or more weeks. The sheets are then taken to the "break-down" mills, where they are passed repeatedly through rollers which are kept at a temperature of about 200° F. This reduces the sheet to a homogeneous, plastic mass of pure rubber. The rubber is then folded into thick sheets and passed into the mixing room. Here, as the pure rubber is passed time after time between the rolls, the attendants add the ingredients, which make the completed compound, in such proportions as may be deemed advisable for any particular case, the proportion of such added ingredients, or adulterants, and pure rubber varying with every manufacturer.

The ingredients composing a well-known rubber compound are as follows: Fifteen pounds Para rubber, four and a half pounds litharge, six pounds whiting, four and a half pounds blue lead, seven ounces sulphur. The amount of pure rubber used in the better classes of cable varies from 35 per cent. to 50 per cent. The various ingredients are added gradually to the rubber during the process of mixing, which requires for its proper operation a high grade of shop skill. The mills are kept at a temperature of about 200° F. during the process. In the mixing room of one large manufacturing company 6,000 pounds of the insulating compound are prepared in a day of ten hours.

(To be continued.)

A subscription to TELEGRAPH AGE is one of the best investments a progressive telegrapher can make; it keeps him thoroughly posted.

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Tesla Confident of Telegraphing to Mars.

Nikola Tesla in his recent experiments in atmospheric electricity obtained results which he believes will make possible communication with the people of Mars. Scientific investigators abroad were sceptical as to his new theory. Professor Fleming, F. R. S., of University College, London, laughed outright at the idea. Mr. Marconi, who is experimenting in wireless telegraphy near Pool, attributed the alleged signals from Mars to local disturbances in the atmosphere.

Following is Mr. Tesla's reply to his critics and his explanation of his theory:

"Having no exact knowledge of the means of investigation used by other experimenters, I cannot judge of the value of their observations. I assume that the same circuit arrangements and devices have been employed which are described in patents and articles on Hertzian telegraphy. In these cases an aerial conductor, not directly connected with the ground, but separated from it by imperfect contacts or coils which prevent the passage of the current, receives the effects transmitted from a distance.

"The atmospheric disturbances in these arrangements, if I am to judge from my own experience, are so great that I have always doubted their practical value. In my investigations these disturbing atmospheric influences were almost wholly excluded. It would have been impossible for other experimenters to note the effects which I have discovered, for with the Hertzian devices only a very narrow region can be explored, whereas I was able to observe the electrical condition of a large portion of the globe, a stretch of land 2,200 miles in width and breadth. That these actions are due to causes heretofore unknown I am convinced.

"I feel that I have not been led away by my imagination, but that my sight was true as ever before, and I am confident that future investigation will confirm my statement.

"Nor have I the slightest doubt, judging from my experiments and measurements, that with a properly constructed electrical oscillator an amount of energy can be transmitted to a planet, as Venus or Mars, even at their greatest distance, sufficient to bring into action a sensitive instrument, such as I have been using in my own observations.

"Furthermore, it is an error to believe that a great expenditure of power is necessary for interplanetary communication. What is needed is an effect specifically great—an enormous rate of energy delivery, but lasting each time only a fraction of a second, so that the total power used up is small. Now, with my oscillator I can make this rate equal to five million horse power and more, if necessary, and my calculations show that a small fraction of this rate is amply sufficient for conveying a message to Mars.

"Heretofore light was the only known agent for communicating with a planet. It is easy to show that by its means such a result is virtually impossible, owing to the rapid diminution of energy with the distance and the impossibility of concentrating in an instrument the energy falling upon a large area. By the method and machinery I have devised we are enabled to convey an immeasurably greater amount of energy to the planet, and the observer there, instead of utilizing in his instrument only an infinitesimal amount of the entire energy conveyed, can avail himself of a large portion of the same.

"A practical solution has thus been found both for transmitting and receiving messages, and we can only hope that there are beings as far advanced, and possibly further than we are ourselves. I see no harm in holding fast to this possibility. This thought cannot but make us better and give us a fresh interest in life."

The New York Chamber of Commerce Favors a Private Pacific Cable.

The New York Chamber of Commerce at its regular monthly meeting, held January 3, unanimously adopted the report of the Committee on Foreign Commerce in regard to a transpacific cable. The report recommends that the cable be laid and maintained by private enterprise because of the first cost of laying the cable and the cost of annual maintenance. The committee thinks that the Government could not profitably undertake this work, as the cable in order to be commercially profitable and useful would have to go to China and Japan. A United States Government cable would probably not be permitted to land in those countries, the members say. The report makes lack of experience another obstacle for the Government.

In advocating private ownership the report calls attention to the bill introduced in the House of Representatives by Congressman Sherman. This bill authorizes the Government to contract with an American cable company for the annual payment of $300,000 for a term of twenty years for the transmission of official messages, and gives the Government authority to take possession of the cable in time of war, rebellion or other emergency.

Pioneer Telegrapher.

Col. Lemuel F. Shelden, who retired as assistant superintendent of telegraph of the Missouri Pacific on January 1, on account of the abolition of his office, as recorded elsewhere in these columns, is a pioneer in the field of railroad telegraphy. He was the first operator to work a key west of the Mississippi and he established an office in Kansas City when that city boasted but three stores. During the civil war he had charge of the government telegraph lines on the Atlantic coast, and for his services was brevetted lieutenant-colonel. Later he was associated with many famous Union generals.

Colonel Shelden is now 68 years of age. For the past eighteen years he has been with the Gould system, and for many years had headquarters in Sedalia, Mo., in charge of the telegraph work on the western lines of the Missouri Pacific. During the time between the end of his government service and his entrance in the employ of the Gould line Colonel Shelden was identified with a number of railroad and commercial enterprises.

Send for a sample copy of the next issue of TELEGRAPH AGE.

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LETTERS FROM OUR AGENTS.

To Our Agents.

While we are desirous to receive from our agents letters for publication respecting their various offices and their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters.

Southern Pacific Telegraph System—Coast Division.

Although not as extensive a division in regards to miles of road, it is safe to say that there is not a division of the Southern Pacific which reaches so many points of interest as this one.

Starting at San Francisco and running almost due south, Stanford University, the beautiful Santa Clara Valley, San Jose, whence stage is taken to Mount Hamilton and the famous Lick Observatory, the noted summer resorts of Santa Cruz and Pacific Grove, the famous hotel and grounds of Del Monte, the great Salinas Valley, the extensive tunnels through the Santa Inez mountains, all combine to make it one of the most important branches of this system.

The Coast Division, with J. L. Frazier as superintendent, at San Francisco, consists of the extensive suburban system of Alameda and Oakland in connection with the ferry, the narrow gauge line to Santa Cruz Mountains and the famous Big Trees, the main line, San Francisco to Surf, which probably before this article is in print will be connected and trains running through to Los Angeles via Santa Barbara and the New Almaden, Pacific Grove and Boulder Creek branches. About one hundred and forty suburban trains and seventy main line trains daily are controlled from the chief dispatcher's office at Third and Townsend streets, San Francisco.

The head of the telegraph department of this division is E. A. Steininger, train master and chief dispatcher. Mr. Steininger, with his small but well selected corps of dispatchers, are men whose years of experience on such roads as the Pennsylvania, Missouri Pacific, Union Pacific and Southern Pacific has made the art of handling trains second nature to them. Most of them have seen service with the different commercial companies and are thoroughly qualified in every way to fill the important positions held by them.

Mr. Steininger was born in Jefferson City, Mo., in 1858, and commenced his telegraphic career as night operator for the Missouri Pacific at that point at the age of eighteen. After six months' service, he was promoted to the dispatcher's office at Sedalia, Mo., where he served three years. In 1880 he came westward and found employment in the dispatcher's office of the Union Pacific at Laramie, Wyo. Later he worked for the Santa Fe at Argentine, Kas., and for the Western Union Telegraph Company in St. Louis, Kansas City and other places. In 1855 he commenced work for the Southern Pacific Railroad as operator at Tulare, and by close attention to business, rose rapidly to the positions of train dispatcher, chief dispatcher and train master, respectively. When the division headquarters were removed from Fresno, where he was chief dispatcher, Mr. Steininger's superior ability was recognized in his appointment as train master and chief dispatcher of the Coast Division, which had recently been consolidated with the Santa Cruz narrow gauge line.

The dispatchers on the Coast Division are assigned as follows: Main Line—First trick, G. I. Ewers; second trick, G. J. Walters; third trick, Geo. Merritt. Narrow gauge—G. B. Fairbanks; extra dispatchers, C. S. Jeffery and G. H. Luke.

G. I. Ewers was born in Angola, Ind., in 1862 and commenced railroading for the Flint and Pere Marquette Railroad in 1880. He worked for several different roads until 1886, when he came West and entered the employ of the Southern Pacific. Mr. Ewers holds one of the most important positions on the whole system. The many trains on this section of the road, which is all single track, taxes the capacity of the road to its utmost and makes the work of the dispatcher one of constant watchfulness.

G. J. Walters is a native of Wisconsin and is forty-two years of age. He began his telegraphic career with the Chicago and Northwestern Railroad at the age of sixteen. In 1877 he was engaged, with four others, by Chief Signal Officer Gen. A. W. Greely, to make an exploration trip to the north pole. Mr. Walters, fortunately, as it afterwards proved, changed his mind and only accompanied them part of the distance, the remainder of the party, proceeding, were lost in the wilds of the Arctic regions. He served as chief dispatcher of the Montana Division of the Great Northern Railway, Great Falls, Mont., and in 1880 came to San Francisco on a leave of absence, but was captivated by the California climate and found employment in the dispatcher's office of the Coast Division, where he has since been.

Geo. Merritt was born in Pennsylvania in 1860 and went to work for the Pennsylvania Railroad in 1875. In 1889 he engaged with the Southern Pacific Railway.

G. B. Fairbanks was born in Boston, Mass., in 1859 and commenced railroading with the New York and New England Railway in 1876. In 1886 Mr. Fairbanks came West and went to work for the Southern Pacific, serving on all the divisions. He has filled the positions of chief dispatcher and train master and is a very competent railroad man. For the past three years he has been located in San Francisco.

C. S. Jeffery, who is a native of Canada and forty-two years old, began his railroad career on the

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Philadelphia and Erie Division of the Pennsylvania Railroad at the age of seventeen. He worked for the Philadelphia, Wilmington and Baltimore Railway, now a part of the Pennsylvania system, and the Denver and Rio Grande. He was on the Shasta Division of the Southern Pacific for several years and was transferred to the Coast Division two years ago.

G. H. Luke, a native of Michigan, began his telegraphic career on the Michigan Central Railroad in 1880, at the age of nineteen. After several years' service with that company he found employment with the Northern Pacific. In 1887 he came West and has been with the Southern Pacific since that time.

The next issue of TELEGRAPH AGE will contain a sketch of the different branches of the Coast Division, with names of operators at the many important junction points, etc.

EVANSVILLE, IND., WESTERN UNION.

On January 1, 1872, Geo. I. Johnson picked up his manifold clip and left the old Evansville & Wabash telegraph office, at the corner of Main and Water streets, and went to the then new Western Union office, on the alley next to the old National Bank, on Main street.

The force in the office was as follows: N. M. Booth, manager; Eugene Nolan, chief operator; Geo. I. Johnson, Associated Press operator; E. J. Marshall, John H. Hedden and W. V. Duke, operators, and Ernest Huer, lineman. Of this number Nolan, Johnson and Huer are dead, Hedden is living in Los Angeles, Cal.; E. J. Marshall is now manager of the Western Union office at Bowling Green, Ky., and Col. W. V. Duke has become manager of this office, which is now located at the corner of Main and First streets.

The force on January 1 embraced the following: C. H. Wise, chief operator; W. E. Keller, Indianapolis local; J. T. Malden, Nashville and St. Louis; W. E. Deusner, Cincinnati and way wires; Ollie Morris, The Associated Press; R. Green, night chief; G. W. Newman, night report; E. L. DeLaney, check clerk; N. B. Booth, bookkeeper; F. Myer, delivery clerk; Chas. Conn, day clerk; C. J. Raley, night clerk; Geo. Augustine, lineman, and Mr. Van Crabtree, janitor. We also have a fine district service, employing seven messengers.

ST. LOUIS, MO., WESTERN UNION.

Among the latest arrivals we note the following: Miss Nellie Mansfield, of the Wheatstone, and Miss Annie Steinbach, of the Morse; Henry Horstman, from Hot Springs, Ark., where he sought and found relief for his rheumatism, and Mr. J. J. Murphy, also from Hot Springs, where he was subbing in Walbaum's pool room for M. J. Fitzpatrick, of New York, who relieved him December 19.

Col. M. D. Crain, our genial night chief operator, recently returned to work after a three weeks' siege of the grip.

Grip was quite prevalent among our force recently, Chas. Lampard, Edward McGrath and F. A. Davis, of the operating department, and Andrew Gibney, night watchman, being among the afflicted.

Mr. Mike Tully has added the ninth heir to his list. Although he is of nine pounds avoirdupois and arrived some weeks ago, the news has been but just revealed. Mr. Tully's many friends wish him continued success.

Miss Lulu Koch has the profound sympathy of the entire force in the death of her stepfather. A handsome floral offering was sent.

Mrs. Phillip Bouckaert, nee Koch, is the happy possessor of a son born on December 19. Congratulations.

Kris Kringle visited Alexander Frazier and left a fine nine-pound representative of the masculine gender December 25, 1900.

Among those who came home to spend the holidays were Miss Anna Bauer, from Springfield, Mo.; Frank McBride, from West Baden Springs, Ind., and Harry Horn, from Vincennes, Ind.

Mr. Geo. J. Goehringer left for Jefferson City, Mo., December 31, to help out during the session of the Missouri Legislature.

Mr. Fred H. Moake, manager of the New Orleans Board of Trade, Western Union office, visited us December 29.

ROCHESTER, N. Y., NOTES.

Mr. Harry Schauble, formerly of the Western Union, but more recently of Wortham & Co., bankers, has opened a broker's office in Batavia, N. Y. All the operators of the city and his many friends wish to congratulate him on his success and hope he will soon have a seat in the New York Stock Exchange. Mr. Louis Sitz, of "195" Broadway, spent the holidays here with his parents. Mr. P. J. Connors was at his home in Geneva, N. Y., for the holidays. Mr. Geo. Newton, of "195" Broadway, has been spending the last few weeks in this city on a vacation. Mr. Clute Noxon, formerly chief operator of the Postal, in this city, has been promoted to the editorship of the "Circulo Espanol," the only Spanish paper published between New York and Chicago. Mr. Noxon's many friends wish him success in his new undertaking. He made a speech before the Spanish Club, of this city, January 3 at their annual banquet.

CHICAGO, ILL., WESTERN UNION.

Miss Thompson, the desk lady, and the friend of all, was the recipient of a doubly beautiful Christmas present from the boys and girls of this office, consisting of a very handsome purse of sea-lion skin with gunmetal mountings. Enclosed was a check for seventy dollars. The occurrence was a complete surprise, and Miss Thompson wishes to thank all the donors through the medium of TELEGRAPH AGE, so that all may be reached.

E. F. Wilson has been acting as temporary manager at Clinton, Ia.

Messrs. O. R. Dogee, J. A. Rissell, C. H. Shively, Nels. M. Hanson and D. C. DeLany have accepted positions at San Francisco on call for five expert operators. Our good wishes accompany them.

We were honored on New Year's Day by the return of Colonel Soule, who had been ill for several days.

Geo. Porter spent the holidays at Galena with his little daughter.

Mrs. Hanson shows her appreciation of TELEGRAPH AGE by subscribing for it.

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Chas. Morse, of the Metropolitan Division, has been appointed to succeed Andy Bouhan on the gold and stock circuit.

Division Chief, James Cummins, was the receiver of a beautiful chocolate set of four pieces from the grateful boys and girls of his division. Mr. Cummins was highly pleased and gave many thanks.

Evan Jones is helping out at Springfield, Ill., for a short time.

Visitors: Messrs. Feist and Parson, chief operator and assistant chief clerk, of the Illinois Central Railroad, of this city, December 22; Mr. Sherman Holbrook, of Minneapolis, Minn.; the Misses Eva Walsh, of Eau Claire, Wis., and Stevens, of Grand Haven, Mich., and Mr. David Thomas, the latter being a resident of Australia, and who is on a visit to his brother, Frederic Thomas, and sister, Mrs. Hopkins.

Division Chief Gallagher took a nap on his homeward bound train on Saturday evening, December 15, which came near resulting in fatal consequences.

The train had passed his station when he awoke, and making his way to the rear of the train, he essayed one of his old railroad train drops, but the train was moving too rapidly and he was thrown into the ditch alongside the track, where in an unconscious condition he was found several hours later by some laborers. By them he was taken to the nearest pharmacy, where after considerable work he was restored to consciousness. His many bruises were treated and at daylight Sunday morning he finally reached his home.

The recent death of Delavan S. Foote, of this city, brings to mind another of the old-time telegraphers whose service for the company is only a memory to those who have been in the office many years.

DAYTON, OHIO, NOTES.

Dayton, although not so large as some other towns, has a widespread reputation as a manufacturing town, and her products go to all quarters of the globe. Business has been exceptionally good this season.

We also have among us a few old-timers who are still manipulating the keys.

Mr. Geo. H. Gangnagel is the genial manager of the Western Union office, with E. J. Lane, chief operator, and Wm. Flynn, Geo. Schaeffer and Harry Froehle, day operators; Harry Githins and Wm. Thompson, nights; Walter DeWeese, all night man.

At the Union Station Ed. Shank is day, and Ed. Bowman night, operator for the Western Union.

Mr. E. J. Lane was born in Dayton, December 3, 1835, and obtained his first position as an operator in 1852 here in this city with the Joint Wade National House Printing Company, of Ohio, Indiana and Illinois. He worked in Sandusky and Cincinnati, and was chief operator at Columbus for nine years, and manager at Dayton for nearly twenty-five years, where he is still employed as chief operator. He is an expert sender and receiver, a first class electrician and very popular with the boys. He looks like one still in his forties.

The Postal office is managed by Mr. W. C. Weinman, a very popular official, with W. H. Hunsaker as chief operator, Frank Froehle and Maurice Flynn days, and W. H. Menges, nights.

At the Stock Yards we find J. C. Grubb in charge.

Mr. Wm. H. Hunsaker was born at Hamilton, O., December 30, 1846. He began his telegraphic career as an operator in October, 1863, with the Cincinnati, Hamilton & Dayton Railroad, at Hamilton, O. He worked for the road at various places and was promoted to be a train dispatcher at Cincinnati in 1869. He has also worked for the Western Union at Cincinnati, Columbus, Richmond, Ind., and at other points, and has been with the Postal, at Dayton, since July, 1888. He is a first class operator, and copied Associated Press matter for a number of years in his early days.

At the Journal we find A. J. Coates, who hails from Bradford, Pa., for The Associated Press, nights.

At the News, Mr. Steahl, who hails from Minneapolis, Minn., represents The Associated Press, days.

At the Herald, Charles Melrose, of Cincinnati, for the Scripps, days.

At the Press there is a late arrival in the person of E. F. Loar, from Columbus, O., for the Scripps, days.

At the broker offices we find for Logan leased wire system, Hugo Reisser, a Dayton boy; Camps leased wire, J. H. McIntosh, a Detroiter, and O'Dells leased wire, Geo. Pomeroy, from Jamestown, N. Y.

KANSAS CITY, MO., WESTERN UNION.

The event of the season in Kansas City circles was the Century ball, which was participated in by quite a number of the craft.

E. R. McLaughlin left on the 24th ult. for Hot Springs, Ark., where he hopes for relief from rheumatism, with which he has been more or less afflicted for the past two years.

Messrs. Fred, Wessel and John Ryan, who left nearly a year ago, on account of ill health, and have since been working in Denver, Col., Western Union,

Deafness Cannot be Cured

by local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure deafness, and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian Tube. When this tube is inflamed you have a rumbling sound or imperfect hearing, and when it is entirely closed deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but an inflamed condition of the mucous surfaces.

We will give One Hundred Dollars for any case of Deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars, free. F. J. CHENEY & CO., Toledo, O.

Sold by Druggists, 75c.

Hall's Family Pills are the best.

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called upon old associates in this office during the holidays, seemingly having been much benefited by their Western sojourn.

Other recent callers were: Joseph Masker, loop chief, of Chicago Western Union; Charles Matfeldt, Chicago Postal, and Samuel McConnell, of St. Louis, Mo., Western Union.

Returned from vacations: John H. Vogan, from a visit to Shreveport, La., and T. M. A. Haston, from Abilene, Kan., where he spent the holidays at home.

Mr. and Mrs. Frank D. Howe are the proud parents of a daughter, born December 30, just in time for the Century "bawl."

Wilson O. Appleby left us December 21, to work in the telegraph department of the Santa Fe general offices at Topeka, Kan.

The following changes have occurred in branch offices: Walter Martin, appointed manager at Coates' Hotel, vice Miss Eleanor Pearson, resigned; James B. Hughes, transferred to Cudahy's, being relieved at 12th and Main streets by Miss Myrtle Kile, from Emery Bird Thayer & Co.'s; Miss Maggie Crooks, of the Wheatstone department, has been apponited to fill the latter position.

CINCINNATI, O., POSTAL.

John N. Garner has been very sick for six weeks with muscular rheumatism.

F. D. Wheeler has been appointed manager of the Third and Walnut street branch, vice A. H. Brockman, resigned.

A. T. Duckett has been assigned to Mill Creek branch, vice Miss Lamar, transferred to the manager's office.

Manager C. E. Sawtelle and family spent the holidays in Chicago.

The Postal has opened an office in Gerdes' Hotel on West Fifth street.

MONTREAL, QUE., CANADIAN PACIFIC.

Harry Schraeder has been assigned to the St. James street ticket office, vice Romeo Stephens, transferred to the main office.

Mr. J. A. Collie is reported to be convalescing from his recent illness.

Business continues good.

The Ottawa Parliament will meet in the early part of February. It is not expected the session will be a long one.

Among the recent visitors during the Christmas holidays were: W. J. Morrisette, manager at Halifax, N. S.; H. J. McCann, of the Dominion Steel and Iron Works, Sydney, N. S., and W. Fraser, of the Postal Telegraph-Cable Co., New York. The above named gentlemen formerly worked in the old office at No. 4 Hospital street. They all enjoyed themselves visiting their numerous friends in the city.

NEW YORK, POSTAL.

Mr. Frederick Zeiss, assistant wire chief on East and North, has returned after an absence of a few days, caused by the death of his mother.

Mr. J. B. Roloson, late clerk to Manager Shirley, upon his return from a holiday vacation spent with relatives at Port Jervis, N. Y., was assigned to duty as operator in the East and Northern division. He is the son of John W. Roloson, former night manager of the Postal, well and favorably known to the fraternity, and who met his death through a bicycle accident several years ago. Mr. A. A. Hageman has been assigned to Mr. Roloson's place at the manager's desk.

Messrs. F. M. Wilcox and J. P. Lyons, of the city department, returned last week from their holiday vacation.

Mr. Thomas H. Tierney, of newspaper locals, has returned from a vacation down in Maine.

Mr. F. J. O'Meara, of the Cable wire, who has been absent on a vacation, is back again at his old post.

A. B. Banker lately returned from Lake Placid, in the Adirondacks, where he spent the summer, and has resumed work.

Joseph McNulty, the Eastern wire chief, and W. E. Todd, the quad chief, were both detained at home for a week recently, and at the same time, owing to illness.

W. W. Shannon is relieving the Eastern traffic chief and broker wire chief during the day.

Mr. J. D. Mann, ably assisted by T. J. Casey, is handling the clerical force in the gallery admirably. K. Cole, of their staff, spent the holidays in Boston.

Mr. Alfred Tully, who has been absent for a long time on account of illness, is again at his post.

Mr. M. McDermitt, the chief night clerk, has earned a title, being a practical man of many years' service.

Mr. Joseph Ahearn, of the "Journal," is very proud of the new switchboard recently put in in that office.

Mr. E. X. Donaldson, of the City lines, has resigned, to accept a position in the Race Department of the Western Union at 195 Broadway.

Mr. J. P. Love resigned some days ago, to accept a position in Washington, D. C.

Mr. T. G. Williams has resigned his place as night traffic chief on the East, and departed for Pittsburg, to enter the Postal service at that point.

Mr. Thomas Kehoe, of the Postal "Evening World" wires, was at White Plains, N. Y., for several days recently, looking after the golf specials for that paper at that point, which were handled by him in fine shape.

The force in the Eastern and Northern divisions have been suffering from colds, owing to the draughts from the two entrances to the operating department. The management has had a substantial curtain hung on handsome brass tubing, so placed as to effectually shut out all draughts. This action is much appreciated by the operators in those divisions. A similar curtain has been in position for some time in the service department, and gives great satisfaction.

Several of the ladies have been absent from two to four days on account of vaccination, which incapacitated them from duty.

Mr. Fred Flint is still on the sick list. His illness has been of long duration.

William Collins, of the City department, has returned, after a few days' illness.

BALTIMORE, MD., WESTERN UNION.

Among our Christmas eve visitors (native Baltimoreans, now located elsewhere) renewing old ac-

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quaintances, visiting relatives and bringing presents to their sweethearts, were the following: Marion Creamer, manager Western Union, Knoxville, Tenn.; Millard Griffin and Otto Scherf, New York broker offices; Harry Myers, Commercial News Department, New York, and George Walters, Western Union office, Washington.

The Check Boys sent the following greeting to their fellows throughout the country: "Wishing you Queen Victoria's health, Rockefeller's wealth, Bryan's pluck and McKinley's luck."

Mr. J. W. Shock has the sympathy of all in the loss by death of his four-year-old son.

Mr. C. B. Martin acted as manager at Waynesboro, Pa., during the Christmas vacation of Manager Anderson.

Mr. Harry F. Whetzle and Mr. J. R. Topp are on the sick list.

NEW YORK, WESTERN UNION.

There were far more than customary New Year and New Century greetings sent the morning of January 1. The force was hardly sufficient to handle the messages, yet some of the best records for a year were made. In the afternoon business fell off with a slump, only to revive with greater force in the evening, and a large force was required to take care of it. Now that the holidays are past, everyone will settle down and look forward to the coming of the Fourth of July, which will soon come—the days, weeks, months and years seeming to fly.

Mr. John J. Barry, a well-known, old-time operator, and who was formerly chief clerk of the superintendent's office, was appointed School Commissioner of the Borough of the Bronx by Mayor Van Wyck, of New York, January 1.

Mr. G. A. Kerr, an old time telegrapher, manager of the circular, addressing and distributing department during the past nineteen years, resigned recently to enter the same business for himself.

Mr. James J. O'Brien, formerly of this office, was recently appointed day agent at the Fifty-ninth street station on the Manhattan Elevated Railroad, New York.

Fifteen new ventilators have been placed in the operating room windows.

Mr. John Reichart, night manager of 666 Columbus avenue office, discovered a fire in a building on the opposite side of the street at 2 A. M., January 2. By his prompt turning in an alarm of fire and awaking the occupants of the large flat house in which it originated, he probably saved many lives and the destruction of the building itself.

Mr. William Wall, of the night force, was abruptly awakened early on the morning of January 5 by his wife, who was vigorously fighting fire in their servant's room. Quickly going to her assistance, the flames were soon extinguished. Mr. and Mrs. Wall had their hands slightly burned, and the damage otherwise sustained was trifling.

Mr. John Brant, secretary of the Old Time Telegraphers' Association, who was absent several days on account of sickness, returned to the office January 1.

Mr. F. O. Nourse has been absent several days, owing to sickness. Mr. W. E. Rath attended to the duties of general traffic chief in Mr. Nourse's absence, while Mr. Arthur M. Lewis acted as Eastern division traffic chief.

Mr. A. C. Wark, formerly an operator at "195," is seriously ill with pneumonia at his home at Highwood, N. J.

Messrs. John J. Donnelly, A. W. Rittenhouse, Charles Brooks and several others suffered lately from severe attacks of the gripp.

Mr. J. F. Paddock has been assigned to the Commercial Advertiser office, vice Mr. Maurice Wescoe, who resigned to accept a position with a broker.

Miss Anna L. Sweeney died January 6, after a long illness, at her home in this city. Miss Sweeney was a fine operator, and highly esteemed by all her friends and telegraphic acquaintances.

Mr. Thomas S. Tintle, porter on the all night force, died at his residence in Brooklyn, January 8.

THE NEW YORK COTTON EXCHANGE OFFICE.—One of the many branches of Supt. Redding's district has just passed through one of the busiest seasons of its existence. Owing to the activity of the cotton market, Manager Sullivan and his able assistants have been taxed to their utmost to handle the immense volume of business with the promptness that is an absolute necessity in this class of work. The personnel of the office is as follows: Manager, P. F. Sullivan, assisted by Joseph Cahill, E. F. Frazier and Miss Bessie Lee, operators; William Richter and Joe O'Donnell, receivers. Miss George is the bookkeeper. Among the extra men (who constitute the greater part of the force) are Messrs T. S. Van Kirk, F. B. Williams, G. F. Grimes, Anton Lang, K. Pittman, G. F. Detweiler, G. F. Mooney, J. H. McHugh and others. We regret to announce the illness of our bookkeeper, Miss George, as well as Receiver O'Donnell.

Typewriters expressed or sent to our shop, repaired or rebuilt at lowest prices for operators. Cylinders, ribbons, at reduced prices; machines bought, sold and rented. Wall & Butler, 57 Dey street, New York. (Adv.)

Any fifty-cent piece of music mailed eighteen cents. Rusticana, Anchored, Calvary, Palms, Flower Song, ten cents each. Anything at less than half publisher's price. I will sell you a good piano for one dollar per week, from $35 up. B. L. Brannan, 195 Broadway, New York. (Adv.)

NEWARK, N. J., POSTAL.

The personnel of this office is made up as follows: John F. Coogan, manager; Misses R. Feldman and A. Lynch, and Mr. William Quass, operators; Mr. M. J. Coogan, bookkeeper; Mr. John Bush, delivery clerk; Mr. James Delaney, night operator, and Mr. John Tully, lineman. Mr. Arthur Nipperts is in charge of the office at the Continental Hotel.

PHILADELPHIA, PA., POSTAL.

The holiday week was full of pleasant memories for many of us. Visitors to the office were very numerous, none of whom, doubtless, were more welcome than Mr. and Mrs. Walter Houghtaling, who came over from New York to visit relatives and call on their host of friends here.

Among those who took advantage of the holidays to visit their homes were the Misses Hannah Bros-

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nahan, who was relieved by her brother—a young law student; Lou Koch, and the Messrs. William Wisegarver and J. M. Connell.

Traffic Chief Geo. W. Dunn and Joseph Hockery spent a short time in New York.

Mr. E. A. Goshert, of Washington, D. C., renewed old acquaintances while here on a visit.

The beginning of the new year saw the complete installation of the third district—a district telegraph office in the allotted space at the Sansome street end of the building. It was a great task, but accomplished without a hitch. The two Morse operators, Messrs. Elmer Locke, who had been connected with that office for the past fourteen years, and William Bowers, have been assigned places on the main office staff.

Mr. R. D. Swinehart, temporarily transferred to Norristown, Pa., has returned.

Messrs. Harry E. Cilley, J. J. Hughes and J. M. Quigley, new arrivals; and Ernest Truitt and F. G. Spiker, departures.

Grip, colds and rheumatism have been depleting our force somewhat. Among the victims were: Samuel Higo, Horace Holtzinger, Frank Holloway, Robert Mecredy, of the Commercial Exchange; W. T. McCorkle and William Madden. Some of them, at this writing, are still absent.

Mr. Roscoe Smith, of the Baltimore local, has been temporarily assigned the 1st N. Y. bonus wire during Mr. Madden's absence.

Telegraphy by the sun's rays without the use of a heliograph was practically and amusingly demonstrated to Quad Chief C. C. Dreher and Traffic Chief Miles Dunn on a recent morning, when their attention was directed to an agitated spot of sunlight, which at once proceeded to spell out their full names in the Morse alphabet. Investigation disclosed the fact that the sun's rays, falling on the hand of Mr. Chas. McIntyre, were diverted and actuated whenever he made a movement in transmitting a message. The same characters were made by the diverted ray against an object in another part of the room.

Mr. Jay A. Thomas, of the 1st N. Y., is in happy suspense, awaiting the arrival of the day in the very near future when he is to be made a benedict.

Manager Daniel Carlin, of the Harrison Building office, refused a flattering offer to enter the employ of a banking house, preferring to remain with the company.

The coming annual election and banquet of the Electrical Aid Society is eagerly anticipated.

It befell the unhappy lot of a broker operator to discover a legal loop-hole, which was the cause of his being fined $25 and compelled to serve on the grand jury. The operator believed the Telegraph Operators' Exemption Law was valid in his case, but the judge declared that telegraph operators in the employ of private firms could not be excused under this act, and, accordingly, imposed the fine.

Manager Bobb, of the Baltimore Corn Exchange office, called in to see his old friend Robt. Mecredy, at the Commercial Exchange.

PHILADELPHIA, PA., WESTERN UNION.

Harry Ettenger, Western Union manager for the past eight years at Cape May, N. J., resigned Jan. 1, to go with a telephone company. R. A. Black, of this office, is manager, pro tem, at Cape May.

Miss M. A. Mullin and A. J. Murren are absent on account of sickness.

Miss Mcgonigle has resigned, to accept a position with a broker.

Miss F. E. Milligan, after a month's sojourn in Boston, has again returned to duty.

Miss Paxson, of the Hotel Walton office, spent several weeks' vacation in California.

Stan. V. Miller, manager of the Hotel Brighton Western Union office, Atlantic City, N. J., has resigned. L. S. Miller, of this office, succeeds his namesake.

A full report of the Aid Society's meeting, which was held January 14, will appear in the next issue of TELEGRAPH AGE. Look out for it, as the meeting was a spicy one.

B. A. Riley, a well-known operator, is doing a rushing business as agent for a well-known typewriter firm. His advertisement will soon appear in TELEGRAPH AGE.

Robt. Barker, formerly operator at Radnor, Pa., is now in Havana.

H. M. Schultz took a week's vacation, visiting friends at Pottsville.

G. C. Bushnell, a Philadelphia and Reading agent at Mt. Airy, Philadelphia, was a recent visitor.

SAN FRANCISCO, CAL., WESTERN UNION.

A new office has been established at the General Hospital, Presidio, with Cecil D. Ross, of the Hospital Corps, from Holly Springs, Miss., as manager.

Arrival: Mr. Summerl, from The Associated Press, Minneapolis.

Departures: Mr. Harrington, who goes to Fresno, as manager, vice Mr. Vincent, appointed cashier at San Francisco; Mr. Wesley Davis, to Bolton DeRuyter leased wire service; Mr. Swanson succeeds Mr. Harkness at the Merchants' Exchange, and Mr. E. B. Peppin assigned to the Tanforan race track, vice J. V. O'Brien.

The late storms have made the extras and regulars jubilant, the shortage of wires making it necessary to work the Wheatstone nights, and all take a hand at copying tape.

Readers of the TELEGRAPH AGE are referred to the advertisement of the Montauk Cable Company on page two of the front cover. (Adv.)

The Modern Service of Commercial and Railway Telegraphy (8th Edition, revised and enlarged), by J. P. Abernethy. The theory and practice, including railway station and express service. Arranged in questions and answers. 425 pages, 40 illustrations. Price $2.00, expressage prepaid. Address John B. Taltavall. The Telegraph Age, 253 Broadway New York.

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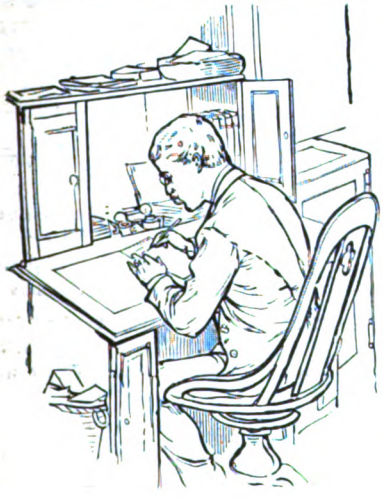
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is a mild, cool, mellow and satisfying tobacco of the highest quality and is the most popular and largest selling brand of "plug cut" smoking tobacco in the world! The reason for this is that the leaf that "Seal" is made of is cured in its own native climate—in the sunshine and balmy atmosphere of the southern states, where pipe tobacco originated. A full size trial pouch will be sent by return mail on receipt of ten cents in postage stamps by

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Mayer's American Telegraphy. A thorough Encyclopedia of the Telegraph. Over 600 pages, 450 illustrations. Price, $3.50, express charges prepaid. Address J. B. Taltavall, 253 Broadway, New York.

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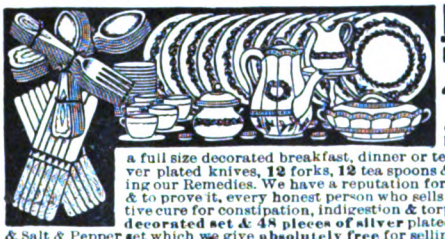
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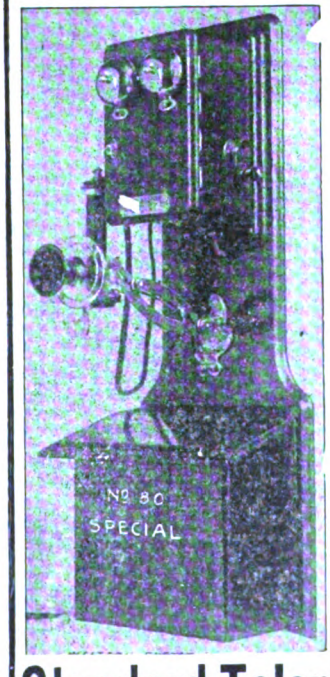
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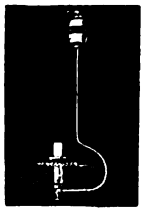
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A prominent business man of Cincinnati has invented a new Vapor Bath Cabinet that has proven a blessing to every man, woman and child who has used it; and as many of our readers may not know of its real comfort and blessings, we illustrate it in this issue.

This Cabinet is an air-tight, rubber-walled room, in which one comfortably rests on a chair, and, with only the head outside, enjoys all the cleansing, curative, beautifying and invigorating effects of the famous Turkish Bath, Hot Vapor or Medicated Bath at home, for 3 cents each, with no possibility of taking cold or in any way weakening the system.



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These baths have truly marvelous powers, far superior to soap and water; celebrated for producing glowing faces, fair skin, bright eyes, elastic figures and perfect health to all men and women who make them a weekly habit, and this invention brings them within the reach of the poorest person in the country.

Clouds of hot vapor or medicated vapor surround the entire body, opening the millions of sweat-pores, causing profuse perspiration, drawing out of the system all the impure salts, acids and poisonous matter of the blood, which, if retained, overwork the heart, kidneys, lungs and skin, causing colds, fevers, disease, debility and sluggishness.

Astonishing is the improvement in health, feeling and complexion by the use of this Cabinet, and it seems to us that the long-sought-for method of securing a clear skin, a good complexion, of retaining good health, curing and preventing disease without drugs, has certainly been found.

The makers inform the writer that more than 600,000 of these Cabinets have been sold, and show letters from thousands of users who speak of this Cabinet as giving perfect satisfaction.

A. B. Stockham, M.D., of Chicago, editor of "Tokology," recommends it highly, as also does Congressman John J. Lentz, Hon. Chauncey M. Depew, Rev. C. M. Keith, editor "Holiness Advocate"; Mrs. Senator Douglas, Rev. James Thoms, Ph.D., pastor First Baptist Church, Centerville, Mich.; Rev. J. C. Richardson, Roxbury, Mass.; Rev. H. C. Roernaes, Everett, Kan.; John T. Brown, editor "Christian Guide," and thousands of others.

Ira L. Gleason, prominent citizen of Hutchinson, cured himself of rheumatism and his friends of colds, pneumonia, fevers, grippe, blood, skin and kidney diseases, and made $2,500 selling this Cabinet in a little more than 12 months. Mrs. Anna Woodrum, of Thurman, Iowa, afflicted 10 years, was promptly cured of nervous prostration, stomach and female troubles, after medicines and doctors failed. She recommends it to every woman as a God-sent blessing. O. C. Smith, of Mt. Healthy, Ohio, was cured of a bad case of catarrh and asthma, and says: "It was worth $1,000 to me. Have sold several hundred cabinets; every one delighted." O. P. Freeman, an aged railroad man, afflicted 17 years, unable at times to walk, was cured of kidney troubles, piles and rheumatism. Thousands of others write praising this Cabinet, so there is absolutely no doubt of it being a device that every reader of our paper should have in their homes.

This invention is known as the new 1903 style, Quaker Folding Vapor Bath Cabinet, and after investigation we can say that it is well, durably and handsomely made of best material throughout, has all the latest improvements, will last a lifetime, and is so simple to operate that even a child could do it safely. It folds flat in one inch space when not in use; can be easily carried; weighs but 10 pounds.

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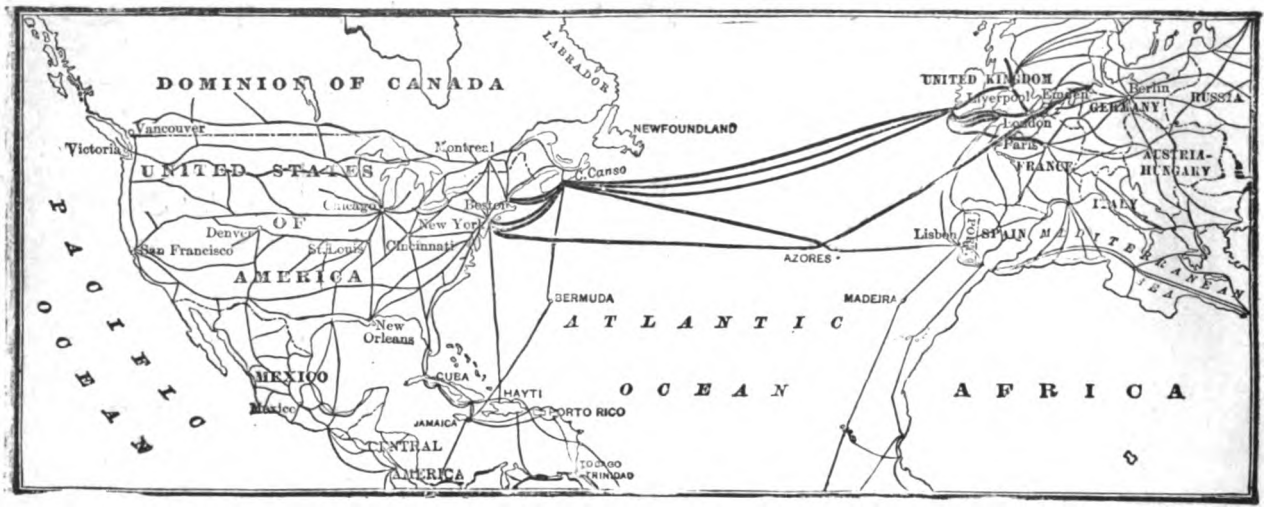
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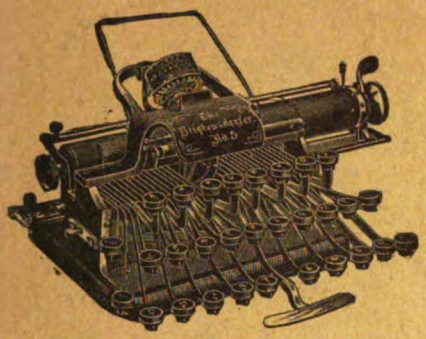
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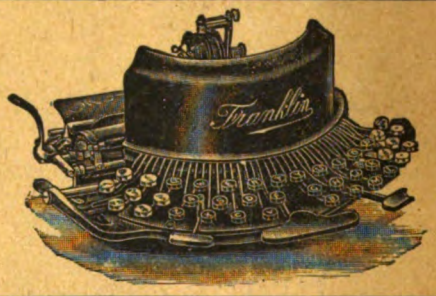
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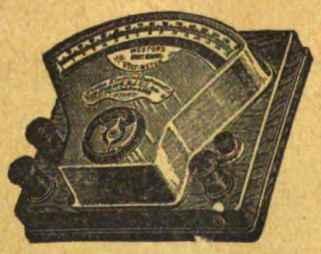
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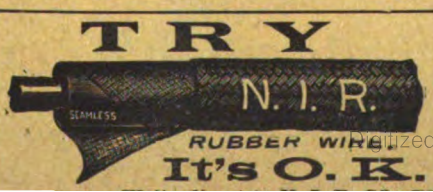
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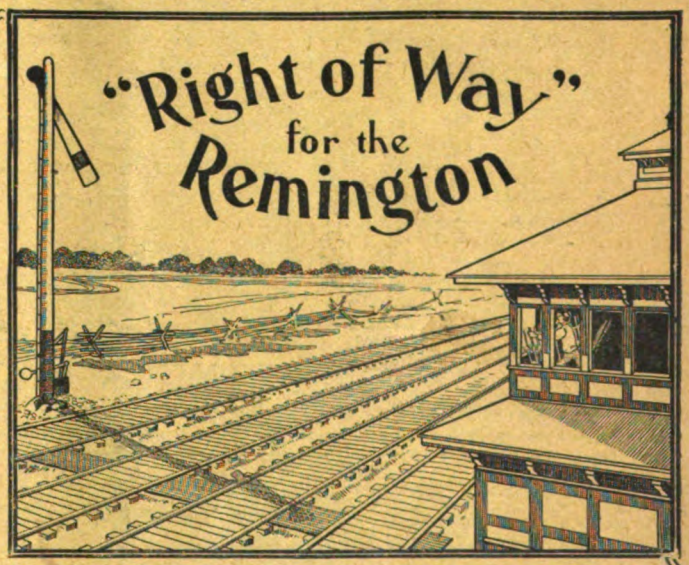
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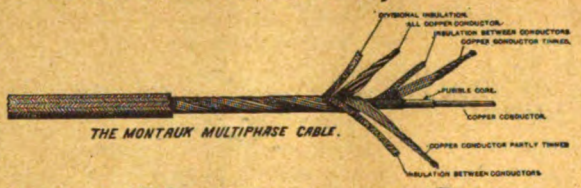
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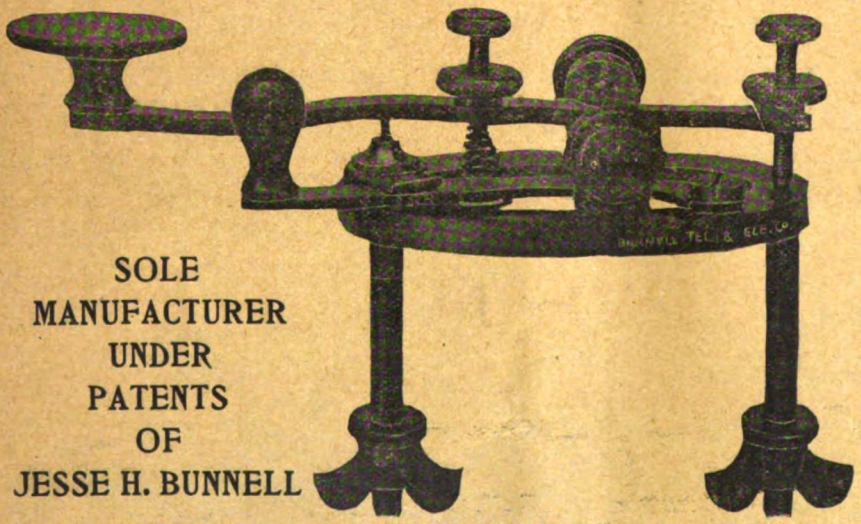
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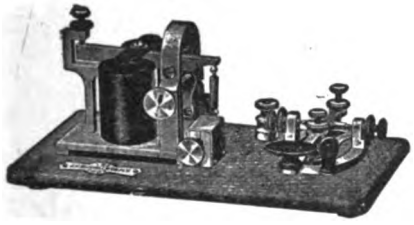
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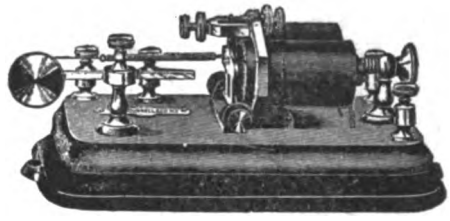
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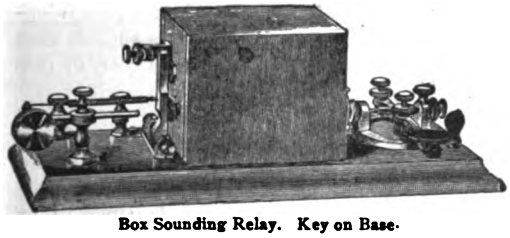
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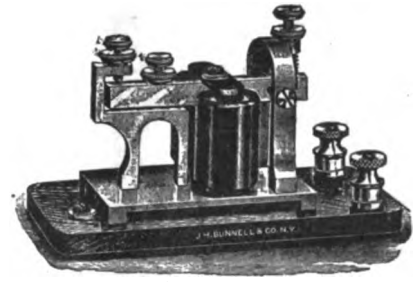
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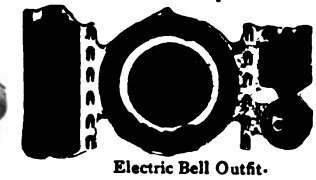
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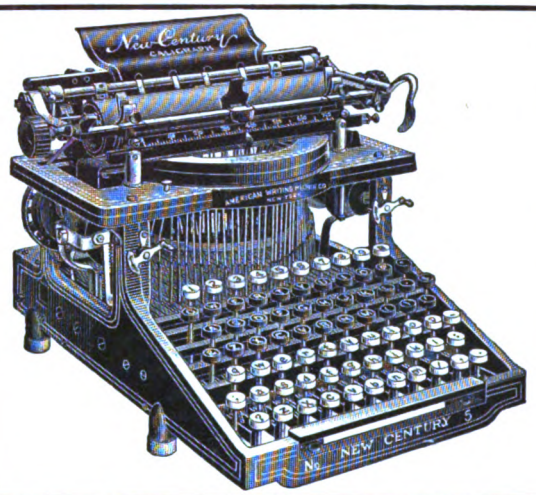
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No. 3. NEW YORK, FEBRUARY 1, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

The Galvanometer—Continued.

The next matter to be considered is the manner in which the Galvanometer is handled. Up to this point we have simply described the construction and principal features of the instrument, all of which go to show that the object desired is to obtain a very sensitive device, the needle of which will indicate by its deflection the presence of an electric current. It remains to be told how to connect the galvanometer outfit properly in the various circuits to be measured and give the reasons for altering the connections to fit the various tests one may desire to make.

It is not the purpose of the writer to go too deeply into this subject in this series of articles. In fact, it would be highly out of place to destroy the interest of the general reader by wading beyond his depth. What a beginner desires is the knowledge of how and why certain connections are made. Individual preferences as to the manner of making certain connections may be learned later on by pursuing the subject in standard works on the galvanometer by well-known authors.

For the ordinary tests required in a telegraph office, the connections are remarkably simple. If one would stop and think for a moment, the proper connections will almost suggest themselves. To illustrate this point let us suppose that it is desired to measure the conductivity; that is to say, the resistance in ohms of a telegraph conductor. Where should we attach the conductor to the outfit, and why?

Before giving the reader this information let us first examine a diagram of a differential duplex circuit and note what conditions exist therein after a line balance has been taken. Of course the reader understands that a line balance means the insertion of an amount of resistance in the rheostat equal in value to that of the external telegraph circuit itself, and that the object of building this artificial companion wire is to obtain a duplicate circuit for the purpose of counteracting the detrimental magnetic effect which the home current, without such a circuit, would exert upon the armature of our own relay; also that this magnetic effect is only destroyed when the amount of resistance in the rheostat is exactly equal to that of the external telegraph circuit. In other words, the inserted resistances in a rheostat, after a balance has been taken, represents the true value of the external line circuit, while the total absence of all magnetic effect upon the armature of the home

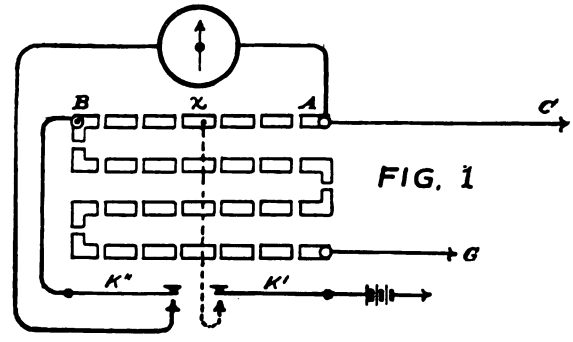


FIG. 1

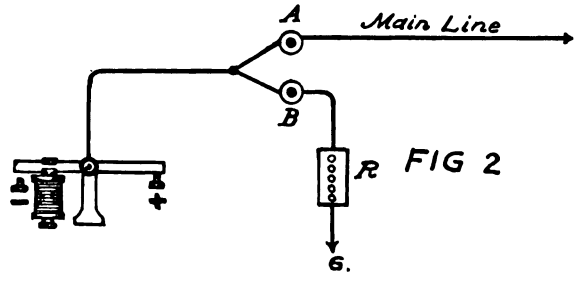


FIG 2

relay indicates that the proper amount of resistance to bring about this result has been inserted, and the process of balancing completed.

If the reader will note the connections closely he will see that the battery current splits at A, one-half of it traversing coil A and line L, while the other half finds an outlet via coil B and the rheostat R. We have just stated that after a balance has been taken that portion of the line between A and C contains just the same amount of resistance as that unplugged in the rheostat, hence A—C is equal to B—G; and as the two coils of a duplex relay are obviously identical in ohmic value, it follows that X—A equals X—B. We thus have four "arms," or two pairs, which compensate each other when properly equalized, and thereby eliminate all traces of magnetism from the vicinity of the relay arma-

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ture or other device inserted between, or connected across, arms A and B.

Now this identical arrangement is followed closely in the construction and connections of the testing outfit of a galvanometer. In Fig. 2 resistance arms X—A and X—B are made equal in ohmic value, and correspond respectively to the relay coils X—A and X—B in the duplex cut. In like manner, B—G in each cut is an adjustable rheostat identical with each other in principle and in operation.

In both illustrations it will be seen that the respective devices (the needle and the relay armature) which we wish the current and magnetism to act upon are placed directly between coils A and B. Finally, as if to make the analogy between the handling of a duplex apparatus and a galvanometer outfit still closer, the plan of procedure is practically identical. In both devices the aim is to eliminate the current and magnetic influence from route A—B.

In a polar duplex we attain this end by first "centering" the armature of the relay, and then adjusting the rheostat until the said armature feels no trace of magnetism from the home battery. With the galvanometer the needle, situated between A and B, is likewise "centered"; that is to say, first made to point to zero—and with the conductor to be measured connected to arm A, the process of freeing route A—B from magnetic influence is accomplished in the same manner by altering the amount of resistance in the rheostat. In other words, by taking an ordinary duplex "balance."

(*To be continued.*)

Recent Telegraph Patents.

A printing telegraph has been patented by H. Mahnken, of New York city.

Mr. E. Kinsman, of Malaga, N. J., has taken out a patent for a printing telegraph.

Mr. Harry T. Johnson, of Jersey City, N. J., has patented a telegraphic instrument.

A type-printing telegraph has been patented in this country by A. Franke, of Berlin, Germany.

A patent for a telegraph or telephone call mechanism has been obtained by E. E. Salisbury, of Chicago.

An electric wave-indicating telegraph instrument has been patented by Warren S. Johnson and Charles L. Fortier, of Milwaukee, Wis.

Mr. L. G. Woolley, of Kenton, Ohio, has obtained a patent for a fire alarm telegraph. This embraces a motor and magneto-electric generator so arranged as to send an impulse over the circuits at intervals to indicate the condition of the lines.

TELEGRAPH COMPANY NOT SUBJECT TO TAX.—Judge Henry, of the Circuit Court of Missouri, has handed down a written opinion deciding that the State of Missouri, represented by the State Board of Equalization, had no right to tax the franchise of the Western Union Telegraph Company.

TELEGRAPH AGE is of value to *you*.

Business Notices.

Mr. Lyman C. Smith, of Syracuse, New York, president of the Smith-Premier Typewriter Company, has been made a Chevalier of the Legion of Honor of France. This honor is conferred in recognition of Mr. Smith's efforts in developing the typewriter manufactured by his company to a high standard of excellence, and for the fine exhibit of the same made at the Paris Exposition. The Legion of Honor was founded by Napoleon I., and its badge was first given to soldiers for valiant deeds of bravery. Later it came to be conferred upon authors, artists, and others. In the present instance, its bestowal will be accepted as reflecting most creditably upon the Smith-Premier product, hence a deserved recognition of American mechanical merit.

The Electric Storage Battery Company, Philadelphia, has placed on the market a new type of chloride accumulator especially adapted to the requirements of telegraph, fire and police alarm, laboratory and other service where voltage rather than amperage is desired. This "BT" type, although of identical plate construction with the other sizes of accumulators manufactured by this company, is peculiar in having the positive and negative plates, together with the lugs or connectors cast in one section, forming "couplets," in this way obviating entirely the necessity for bolt connectors or burning to set up the battery. The plates are simply lowered in the receiving jars and the only connections to be made are at the terminals, thus effecting a very considerable saving of labor in installation. The "BT" cell is made in one size only, the plates being four by three and one-sixteenth inches, the discharge in amperes for eight hours being three-quarters of an ampere; for five hours, one ampere, and for three hours, one and one-half amperes. A circular describing these cells will be forwarded upon application to any of the company's offices.

Miscellaneous Items.

Mr. Sterns Francis Jones, electrician from the electrical engineer's office of the Postal Telegraph-Cable Company, New York, has been detailed to superintend the equipment of the large new offices of this company in Indianapolis, Ind., and Cleveland, O. He will also make some important changes in the large main operating room of the Postal company in the Stock Exchange Building, Chicago. This room, when fitted up in December, 1895, was conceded to be one of the best arranged in the world, but since then, so greatly have time and labor-saving devices and improvements in apparatus been developed, that the present office has become antiquated. Mr. Jones will, among other things, install in the above-named offices some of the switch devices of Mr. J. F. Skirrow, assistant manager of the New York office of the Postal company. Mr. Jones lately completed the fitting up of the new office of the Postal company in Philadelphia, and his work there has received the highest praise.

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Mr. E. E. Dildine has been appointed assistant superintendent of telegraph of the Northern Pacific Railway Company, with headquarters at Tacoma, Wash.

Mr. Emmet J. Gordon, manager of the Postal office at Sedalia, Mo., has been transferred temporarily to Jefferson City, the capital, for legislative work during the session of the Legislature. During his absence his place will be filled by C. L. Forey, of Wichita, Kan.

Mr. A. Faden, manager of the Postal branch office at 48 North Morgan street, Chicago, Ill., in recently renewing his subscription to this paper, said: "TELEGRAPH AGE is the very best telegraph paper ever published, and under no circumstances would I be without it."

Miss Annie Mullins, manager of the Postal office in the Monadnock Building, Chicago, Ill., recently spent a brief vacation at St. Paul, Minn., in company with a party of old school friends. During her absence Mr. F. T. Wynne acted as manager, assisted by Miss Mary O'Connor.

Personal Mention.

The friends of Mrs. Charles A. Tinker, wife of the general superintendent of the Western Union Telegraph Company, New York, will be pained to learn of her serious illness at her home in this city.

Mr. William B. Gill, superintendent of the Western Union Telegraph Company, at Philadelphia, Pa., returned lately from a sojourn at Old Point Comfort, Va., where he had been to recuperate from an attack of grip.

The Gold and Stock Life Insurance Association.

The 23d annual meeting of the Gold and Stock Life Insurance Association was held in the Western Union Buiding, New York, January 21, President Charles P. Bruch in the chair. There were about 50 members present, the meeting being one of the largest held in recent years. In the president's report, emphasis was placed upon the excellent financial condition of the Society. It was pointed out that the gain in assets over the previous year, amounted to $1,614.07, while the expense of management was but $367.01. Mr. Bruch recommended that careful consideration be given during the coming year to the subject of graded rates for future members, with a view to action at the next annual meeting. The reports of the secretary, treasurer, auditors and trustees, were read. It was shown that the present membership numbers 1,054, a gain of 43 during the year; assets over all liabilities, $12,930.36, as against $11,315.36 of a year ago; cash balance on hand of $15,093.36, and payable on claims, but not yet due, $2,460. When the nominations for officers were called for, prior to the election which followed, President Bruch called Mr. John Brant to the chair. Mr. Bruch was renominated for president, and a ballot was directed to be cast for him by the secretary of the meeting, Mr. Charles E. Refford. The entire ticket elected, which returned all of the old board, is as follows: Charles P. Bruch, president; George W. E. Atkins, vice-president; William J. Dealy, secretary; Lewis Dresdner, treasurer; Michael Breslin, Charles Shirley, David B. Mitchell, Fred O. Nourse, Albert J. Driver, executive committee; Frank H. Nicholls, William Shone and Michael J. O'Leary, auditing committee.

Among those present were: W. L. Ives, T. E. Fleming, G. F. Fagan, John Doran, Michael Doran, C. S. Pike, C. P. Bruch, W. J. Dealy, C. E. Refford, A. M. Guest, H. A. Moody, F. O. Nourse, John Rathbone, F. D. Murphy, G. W. Logan, G. A. Newton, John Brant, John Heidemark, L. Dresdner, Joseph Knittle, Michael Breslin, H. E. Wright, W. T. Budds, W. Vitch, F. Gerber, M. Redmond, W. F. Lewis, J. H. Montgomery, Ramage Ferguson, William Shone, P. Kruger, R. L. Bamford, A. J. Driver, H. E. Crowell, A. Doherty, G. C. Sigler, F. E. Fitch, Charles Shirley.

A Characteristic Greeley Incident.

Major George S. Williams tells the following story in the Inland Printer concerning Horace Greeley:

Stanley Huntley was sent to report a meeting of the Farmers' Club for the Tribune. The members became involved in a wordy quarrel over the merits of a new potato and made themselves ridiculous. Huntley had a keen sense of humor and wrote a very amusing account of the meeting.

The next day Mr. Moore, the city editor, told Huntley that Mr. Greeley wished to see him. The reporter rapped at the chief's door, and hearing the squeaky "Come in," stood waiting.

"What do you want?" demanded Greeley, angry at being disturbed.

"You sent for me, sir. My name is Stanley Huntley."

"The —— it is! So you're the —— fool that wrote up that Farmer's Club meeting. You made them look like a pack of fools, and so they are. But you oughtn't to have done it. I know they are a lot of fools, but it mustn't be said so in the Tribune, for, young man, I'm the president of the Farmers' Club."

PRINTING TELEGRAPH.—A series of tests of the Murray page-printing telegraph system recently made between Boston and New York, extending over a fortnight, were remarkably successful, a column of the New York Herald being repeatedly transmitted without any error at speeds varying from 60 to 96 words a minute. A number of ordinary commercial messages were also transmitted with equally satisfactory results.

Farmer Hayseed: No, I don't want any more labor-savin' machines. I've tried enough of 'em. Look in there. Thar's a typewritin' machine my wife spent all her egg money to git for me, 'cause I ain't very handy with the pen. Just look at the 'tarnal swindle.

Agent: What's the matter with it?

Farmer Hayseed: Matter? Why, you can't even write y'r name with the 'tarnal thing unless you know how to play a church organ.

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Obituary.

MRS. BENJAMIN O. STRONG.

The brief announcement made in our last issue of the death of Mrs. Benjamin O. Strong, formerly well known among telegraphers as Miss Lizzie H. Snow, we are now able to supplement with further information which will interest many of our readers.

Mrs. Strong was born July 29, 1838, at Orleans, Mass. She learned telegraphy while still in her "teens," and was in charge of several different offices on the original Cape Cod telegraph line, between 1855 and 1860. The Cape Cod line at that time was largely used for the purpose of transmitting maritime news to the Exchange in Boston. This business was quite new and required the exercise of careful discretion and sound judgment, ordinary commercial telegraph business and railway dispatches forming also a large part of the occupation of the few wires then in use. After the American Telegraph Company had acquired the local companies in the East, Mrs. Strong was selected to take charge of the city line service at the general office at 109 State street, Boston, in which ladies were exclusively employed. In this responsible position she earned the commendation of all the officials and enjoyed the good-will of her many associates of both sexes among the operators. Among them was the now famous inventor, T. A. Edison, Mr. L. C. Weir, now president of the Adams Express Company, who had been her mentor in learning telegraphy while on "the Cape," and others who subsequently attained prominent and responsible positions in commercial service.

While General Marshall Lefferts was in charge of the operation of the American Telegraph system, Mrs. Strong was appointed manager of the city line department of New York City, and occupied this position for about fourteen years, during which the girl's school for telegraphy in Cooper Union was established at the instance of Mr. Peter Cooper and for a long period it was under the general direction of Mrs. Strong, while still occupying the position of city line manager for the Western Union Company. Her industry, self-reliance and faculty of management were quite remarkable and commanded the respect and esteem of all who knew her. In 1875 she returned to her native State and was for some years employed in the Union Pacific Railway Company's office, in Boston, having charge of the telegraphic and certain other important affairs connected with that railway company's Boston office under the direction of Hon. Frederick L. Ames. She retained her intimate friendships in Plymouth during all this period, and about ten years ago resigned her latest position to become the wife of Mr. Benjamin O. Strong, of Plymouth, to whom she was married February 17, 1891, and had since resided there.

Those who knew her best were aware how ably and trustworthily she had discharged the duties of an exceptionally active life, and held Mrs. Strong in high esteem, fully sympathizing with the sorrowing husband and family in their bereavement. The funeral took place on Monday, January 7, the Rev. J. F. Thompson, late rector of the Plymouth Universalist Church, officiating, and many of her townspeople testified their respect and regard by their presence.

Edward L. Norcross, formerly manager of the Western Union office at Terre Haute, Ind., and a well-known Mason, died in that city on January 11, aged 61 years. Mr. Norcross was born at Brattleboro, Vt. Early in life he became a telegrapher, and for thirty-eight years was the manager of the Terre Haute office, resigning his position there in January, 1900, in order to enter other business. Mr. Norcross was a widower and leaves no children.

Dr. Wm. A. M. Mack, Mayor of Elizabeth, N. J., and a well-known physician, died on January 14, aged 43 years. He started his business career as a telegraph operator when 17 years of age, and by his own exertions raised himself to a position of influence and wealth. He had charge of the telegraph office at Elizabethport, and while working at the key he employed his spare moments to study medicine. He graduated in 1878. Entering upon his new profession, his medical practice became immense; he attained wide popularity and was twice elected Mayor of Elizabeth.

William W. Thweatt, one of the oldest members of the Baltimore, Md., Western Union force, died in that city January 12 in the 62d year of his age. He was a Virginian by birth and during the Civil War served as an operator in various Southern cities. In 1867 he accepted a position with the old United States Telegraph Company at Washington, D. C., afterwards becoming the manager of its Richmond, Va., office. For a time he abandoned telegraphy for railroad work, but this was not congenial to his tastes, and in 1875 he entered the Signal Service at Washington. Since 1877 he has been in the Western Union employ at Baltimore. He leaves a wife, a son and daughter.

Charles P. Dwight, of Toronto, Ont., assistant general manager of the Great Northwestern Telegraph Company, of which his father, H. P. Dwight, is president and general manager, died on January 20, of pneumonia, after a brief illness. Mr. Dwight was born twenty-nine years ago in Toronto. After receiving a college education, about ten years ago he entered the employ of the Great Northwestern Telegraph Company, where by sheer ability he worked his way up to the position he lately held, and to which he was appointed three years since. Mr. Dwight possessed exceptional executive abilities, a wide range of general information and was making an excellent record for himself in the company with which he was associated, and his future was one of bright promise. He had a literary turn of mind and his sketches were occasionally noticed in various publications.

Alfred H. Seymour, a well-known New York telegrapher and manager, died of pneumonia on January 16 at his home in Brooklyn. He was born in Manlius, N. Y., sixty-five years ago, becoming an operator when but a lad, and in the course of

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his life had worked in many of the chief cities of the country. In 1864 he was chief operator for the American Telegraph Company and later held a similar position with the Pacific and Atlantic Telegraph Company at New York. After the demise of the latter in 1874, he went into the service of the Mutual Union Telegraph Company, remaining there as manager for several years, and afterwards becoming manager of the main office of the Postal Telegraph-Cable Company, New York. For ten years past he has been an operator in the office of the Brooklyn Times, and was an occasional contributor to the literature of his profession.

Death of Professor Elisha Gray.

Prof. Elisha Gray, the well-known inventor, died suddenly at Newtonville, near Boston, Mass., on January 20. He had been East for nearly two years for the purpose of perfecting a system of submarine signalling which would enable a ship at sea to detect the approach of another vessel ten miles or more away. In this he was associated with Arthur J. Mundy, and great hopes were entertained of a successful outcome of their joint labors. The system is referred to elsewhere in this issue.

Prof. Gray was born in Barnesville, Belmont County, O., on August 2, 1835, and was the son of David Gray, a native of Pennsylvania and of Scotch ancestry. When 12 years old his father died and he was thrown upon the world. Apprenticed to a blacksmith, he found, after he had mastered the trade, that it was too severe for him. Then he sought an apprenticeship with a ship joiner in Brownsville, Pa., and remained there one and a half years in the service.

Falling in with the late Prof. H. S. Bennett, then a student at Oberlin College, he matriculated at Oberlin in 1857. While taking a course there he paid his way by working as a carpenter. His graduation was with the highest honors of his class, and while in the institution he invented nearly half the new appliances which were used in the laboratory there.

After graduation Prof. Gray rented a farm near his parents. He took with him as his wife Delia M. Shepard, of Oberlin. The farming did not prosper, as the farmer spent most of his time in electrical research, but he succeeded in inventing a self-adjusting telegraphic relay, and in a short time developed and perfected a type-printing telegraph system by which messages were transmitted upon an alphabetical keyboard and received at the distant end of the wire upon a paper ribbon in Roman characters. The Gray's Printer was very extensively used for short distances in the United States until it was superseded by the Bell telephone. He also invented at that early date an annunciator for use in elevators. In 1869 he formed the firm of Gray & Barton in Cleveland, which was later moved to Chicago, and became incorporated as the Western Electrical Manufacturing Company.

In 1873 he accidentally discovered that musical sounds could be transmitted by wire.

Prof. Gray's attention was engaged with his harmonic system for the electrical transmission of musical tones over wires, and also in utilizing such tones by the use of analyzers for the simultaneous transmission of several messages. In Detroit in 1874 an electrical concert was performed before a delighted audience in the opera house, upon Gray's harmonic organ, various tunes being played upon his electrical keyboard in Chicago, and were electrically conveyed over *one* telegraph wire to the organ in Detroit, the distance being 310 miles.

About this time he became convinced that the tones of the human voice could be electrically reproduced at a distance over a wire, and had so far advanced in his study of the subject that on the 14th of February, 1876, he filed a caveat in the U. S. Patent Office for "a new art of transmitting vocal sounds telegraphically," and in his caveat he stated: "It is the object of my invention to transmit the tones of the human voice through a telegraph circuit and reproduce them at the receiving end of the line so that actual conversation can be carried on by persons long distances apart."

On the same day A. G. Bell filed in the U. S. Patent Office a specification claiming "a method of, and apparatus for, transmitting two or more telegraphic signals simultaneously along a single wire by the employment of transmitting instruments, each of which occasions a succession of electrical impulses differing in rate from the others; and of receiving instruments each tuned to a pitch at which it will be put into vibration to produce its fundamental note by one only of the transmitting instruments." Upon this application were founded the claims of the Bell telephone.

In 1878 Prof. Gray received the grand prize at the Paris Exposition, and was also given the degree of chevalier and the decoration of the Legion of Honor. At the electrical exhibition in Paris in 1881 he was again honored with a gold medal. By Oberlin College he was given the degree of A. M. and by Ripon College that of Ph. D. He also held the degrees of Sc. D. and LL. D., was a member of the American Philosophical Society and the Institution of Electrical Engineers of London.

Resignations and Appointments.

Mr. H. G. Crowe, manager of the Postal office at El Paso, Tex., having resigned, his place has been filled by Mr. N. De Bree, formerly manager of the Postal at Toledo, O.

Mr. W. H. Roland, formerly of Norfolk and Richmond, Va., has been appointed manager of the Postal office at Danville, Va., vice Mr. E. W. Crew, who has been transferred to Richmond.

Recent New York Visitors.

Mr. W. W. Splane, superintendent of telegraph of the Standard Oil Company, Oil City, Pa.

Mr. H. D. Reynolds, superintendent of the Postal Telegraph-Cable Company at Buffalo, N. Y.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for sample copy.

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CABLE MANUFACTURE IN THE UNITED STATES.*

BY WM. MAVER, JR.

(*Continued from page 37.*)

When thoroughly mixed, the rubber compound is ready for placing over the wire. This is done in two general ways; first, by the use of insulating machines, somewhat similar to the machines used in making rubber tubing. In the second method the compound is formed into a strip which is placed over the conductor. In the latter process the wire is rolled off a drum or reel, and passes through a guide to and between a pair of grooved wheels, where the rubber strip is lapped closely around the wire, the pressure causing the edges of the strips to adhere, and at the same time the surplus rubber is removed by suitable cutting edges on the grooved wheels. This produces a seam in the insulation.

The operation of the insulating machines used in the first-named method is virtually as follows: The prepared compound is fed by an attendant into an opening in the machine; a worm draws the compound towards the die through which a wire is passing, and the wire is covered with the compound to the thickness desired, this being regulated by the excess of diameter of the die over the diameter of the wire. The compound is maintained in the desired plastic condition while in the machine by suitably arranged water jackets, the temperature of which is governed by valves which admit steam or cold water. The rate at which the wire may be covered in this way depends largely on the size of the wire and the thickness of the covering, which is termed the "wall." This method produces what is termed a "seamless" insulation. The wire, while being drawn through the die, is held by guides directly in the center of the die to insure an equal distribution or centering of the compound over the surface of the wire. The conductor, after issuing, covered, from the insulating machine, is drawn along a table through powdered talc, a distance of forty feet or fifty feet, to a drum, upon which it is carefully coiled. The wire thus covered may then be taped prior to vulcanizing, or it may be vulcanized without taping, but in the largest sizes of cables it is customary to first tape the insulated wire.

The taping apparatus consists of a revolving disc on the face of which a reel, holding the tape, is suitably supported. The insulated wire or cable passes through a sleeve in the center of the disc, and as it does, the reel, in the act of revolving with the disc, wraps the tape spirally around the cable. The latter passes from the iron take-up drum to a reel, and is then ready for vulcanizing. The process of vulcanizing the compound consists in placing the wire and reel in an oven, where it is subjected to a steam or dry heat at a temperature of 250° F. to 300° F. Steam heat is preferred by many manufacturers as giving the best results. Much care is required in the process, and the most favorable temperature and the length of time required to bring the compound to the desired degree of hardness and tenacity are matters of experiment. They vary with different compounds.

At this point the manufacture of paper-covered cables may be considered. This consists essentially of winding strips of manila paper in reversed layers to any desired thickness over the conductor. When the conductor is covered it is wound on a suitable reel, which, with the conductor, is placed in a "bake" oven, where it is subjected for hours to a temperature sufficiently high to drive all the atmospheric moisture out of the paper. The oven in which this baking is done is tightly sealed, except at a vent at the top. An attendant, by holding his hand above this orifice, is able to tell when the drying has proceeded sufficiently far by the nature of the air which passes out. After proper drying, the reel and conductor are immersed in a vat of boiling resin oil, often termed London oil, and as the baking process has rendered the paper exceedingly hygroscopic, it absorbs the oil with avidity.

Formerly the paper was placed over the wire as tightly as possible, but this plan has been abandoned for several reasons, one of them being that it imparted too great rigidity to the completed cable, with the result that the cable could not be bent without breaking the insulation. Further, it retarded the heat in the bake oven from reaching into the inner layers of the paper to such an extent that the outer layers were injured by too long exposure to the heat of the oven. Again, when the paper was put on under strong pressure, the compound could not readily penetrate to the inner coils, and as the ability of such cables to resist high electrical pressure is largely due to the presence of the oil, the importance of this latter point is obvious. By placing the paper layers more loosely over the conductor the layers slip easily over one another when the cable is bent, and the heat and the oil more readily penetrate to the inner layers, thereby improving the insulation resistance and increasing the pressure-resisting quality of the covering.

The conductors thus insulated are now ready for bunching into cable form. For the high-tension cables here particularly referred to three insulated conductors are usually employed. These are laid up in a strand, or spirally, and are taped, the interstices being filled in with jute, after which the conductors are ready for lead-covering. In other instances the conductors are bunched, and a "jacket" of paper strips or rubber compound, as the case may be, is put around the conductors thus bunched. This latter method is sometimes termed "split" insulation, because of the fact that the insulation is divided between the jacket and the insulation over each conductor.

All cables intended for use in underground conduits in cities are now lead-covered to protect the insulating material from destruction by the acids, alkalies, etc., found in such conduits. In the case of paper or fibre cables it is absolutely necessary that they be covered with lead to protect them from moisture in the underground conduits. Rubber cables are, of course, moisture-proof, and if nothing but water were to be encountered in the conduits they would not require to be lead-coverer. Rubber immersed

*Abstract of an article on "Electrical Cables for High-tension Service, How They are Made and Tested in the United States," in Cassier's Magazine.

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in salt or fresh water appears to be imperishable, barring mechanical injury.

The lead-covering of the cable is an interesting process. The framework and the other parts of a lead-covering machine are of massive construction to withstand the heavy pressure which is applied in putting on the lead casing. The pillars of the frame are of solid iron about ten inches in diameter. The working parts of the machine are a solid iron ram about fifteen inches in diameter operated by hydraulic pressure. The ram passes down several feet into a vault in the ground, the hydraulic pressure being applied at the lower end. The molten lead is poured into a hollow cylinder. The lead ram, or plunger, of solid iron, five inches in diameter, is rigidly bolted to the framework, its lower end fitting snugly into the receptacle in the cylinder. As the die block must be changed to suit the size of cable to be lead-covered, the frame is so arranged as to permit of its easy removal. There is a curved opening in the die block which reaches to the guide through which the cable passes. The die block rests on the top of the lower ram, and the cylinder rests on the die block, in which respective positions they are held by bolts.

(*To be continued.*)

Mr. Mason and the International Association of Municipal Electricians.

Since returning from Charleston, S. C., where he read a paper on "The Progress and Needs of the Fire and Police Departments," viewed from an electrical standpoint, before the "League of American Municipalities," a paper which has attracted a good deal of attention, Mr. F. C. Mason, Superintendent of Police Telegraph, of Brooklyn, N. Y., has received a number of requests from the Mayors of different cities for a copy of his paper and rules governing municipal inspection and installation. At the meeting of the International Association of Municipal Electricians, held in Pittsburg, Pa, last September, a committee was appointed to draft a set of rules for municipal inspection and construction, to be presented at the next meeting of the Association, which will be held at Niagara Falls in September, when this subject will be the principal topic for discussion, the object being to secure uniformity in this work as far as possible throughout the United States and Canada. In order to promote this laudable design, Mr. Mason requests all municipal electricians or other city officials having a code of rules governing this work to forward him a copy, so that the Committee may have abundant material from which to select, and, if possible, improve upon.

The Executive Committee of the International Association of Municipal Electricians will meet at Niagara Falls during February and complete arrangements for its September meeting, fixing the date and perfecting the necessary hotel arrangements, etc. All members of the Association are invited to attend the meeting of the Executive Committee, the exact date of which will be announced later.

Signalling Under the Sea.

Prof. Elisha Gray, the inventor, and Arthur J. Mundy, of Boston, Mass., have after more than two years of experiment and study invented delicate machines with which to transmit submarine signals. By means of the apparatus already constructed messages have been transmitted and received on board a steamship twelve miles from the signal boat. The inventors say that the submarine boat Holland would not be able to surprise warships equipped with the receiving or hearing instruments, for the reason that the working of the Holland's machinery could be detected while she was still some miles away. The members of the United States Lighthouse Board have had the plan explained to them, and all, from Rear Admiral Higginson down, are of the opinion that the system would be of value to the lighthouse service. It could also be used to announce the approach of ocean steamships to port.

The idea first occurred to Mr. Mundy while sitting on the deck of a Mississippi River steamboat shortly after Dewey's victory in Manila Bay. He sat down and wrote a long letter to Professor Gray, who was so impressed with the idea that he left his home in Chicago and has been in Boston ever since working with Mr. Mundy to make the scheme a success. Every schoolboy knows that if two stones are cracked together under the surface of the water a sound is produced which may be heard under water for a long distance. This simple fact suggested to Mr. Mundy the possibility of a signalling system by means of which ships at sea might communicate with each other, or with stations on the shore, or by which warnings might be sent to ships from the shore in times of fog or darkness. The idea was communicated to Professor Gray, who undertook the task of providing the necessary mechanical devices for carrying it out. Work was begun in July, 1898, and has been steadily prosecuted ever since by both Professor Gray and Mr. Mundy. As a result of their joint labors a practical test was made on the last day of the century, which is described in the following statement:

"Boston, December 31, 1900.

"We, the undersigned, hereby certify that we have this day heard the submerged bell (struck electrically from the experimental station on board the Sea Bell) through the electrical receiver (submerged from the deck of a steamer engaged for the purpose), at distances of one and a half, four, eight and twelve miles in the open sea. At one and a half miles the sound of the bell was heard very loud and very distinctly; at four miles the sound was quite as distinct and almost as loud as at one and a half miles; at eight miles the sound was quite as distinct as at one and a half miles and almost as loud as at four miles; at twelve miles the sound was heard at times quite distinctly and at times somewhat feebly. Even at twelve miles the sound received was sufficient to give a practicable warning signal. The bell was also heard in the forehold of the steamer, without any receiving apparatus whatever, at a distance of one-quarter of a mile so loud that it seemed to be right alongside the ship, and at a distance of one and a half miles it was heard

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faintly but unmistakably, in the same position in the hold and without any apparatus for detecting sound."

The statement is signed among others by Henry M. Whitney, Commander Arthur P. Nazro, U. S. N.; Prof. Wallace C. Sabine, of Harvard; Prof. William Y. Allen, Prof. Elisha Gray, Arthur J. Mundy, Henry M. Soule, Capt. E. Baker, of the steamer H. F. Dimock, and A. P. Bartow, Master U. S. S. Mayflower.

The experimental boat, the Sea Bell, was built last summer by the inventors for the purpose of enabling them to make a practical test of their theories. Very little has been known heretofore about the action of sound waves in the water, experiments in acoustics having been made principally in the atmosphere. Before building the Sea Bell the inventors made many experiments with sound in the water, using as sound producers explosives, water whistles and other devices. They finally selected a bell as the best instrumentality for producing the sound. Accordingly the Sea Bell is equipped with an 800-pound bell, such as is used for fog signalling in the atmosphere. The current for supplying the necessary power comes from a small dynamo driven by a six-horse power gasolene engine. The bell is lowered through a well hole directly in the center of the boat until it is twenty feet below the surface of the sea. By an ingenious mechanism it may be rung continuously just as a church bell is tolled, or it may be made to ring any desired number or numbers at the will of the operator, who is thereby enabled to send intelligible messages, each letter of the alphabet being represented by a number. It is obvious that instead of suspending a bell from a boat it may be suspended from a buoy, and anchored under water of any depth at any distance below the surface. In such a case the current for operating the clapper would be brought to the bell from the shore by means of a submarine cable.

This much for the transmitting station, which produces the sound. The problem of picking up the sound thus produced from the depths of the sea is another story. The inventors have devised a great variety of receivers, operating pneumatically and electrically and mechanically, and have carefully tested their relative efficiency. The simplest way to receive the sound on board ship is to go below in the hold of the vessel as close to the keel as possible, without any apparatus whatever, and listen. At a distance of a mile or more the sound of the bell may be distinctly heard by the unaided ear. It comes through the water and passes through the sides of the ship into the atmosphere of the hold, and is there recognized by the ear. If one end of a wooden rod is placed against the skin of the ship, the other end being placed against the ear, the sound is heard at even a greater distance. A common tin ear trumpet, such as used by a deaf person, screwed on the end of a piece of gas pipe, the mouth of the trumpet being sealed by a tin diaphragm, and submerged six feet under water, enables the observer at the upper end of the pipe to hear the submerged bell at a distance of three miles.

For greater distances the inventors have constructed an electrical receiver, by means of which the bell has been heard distinctly at a distance of twelve miles. The submerged end of this receiver may be lowered over the side of the ship or attached to it on either side of the bow, under the water line, like a pair of ears. The submerged part is connected by means of an ordinary telephone receiver, which may be carried to any part of the ship, say the pilot house, where the navigator can listen for the sound of the bell. Professor Gray has devised an improvement for the electrical receiver by means of which a large gong will be rung automaticallly in the pilot house, or any other part of the ship, whenever the submerged bell is rung. That is to say, the gong rings sympathetically, following the bell, stroke by stroke, there being no connection between them other than the sound waves travelling through the water from the bell to the gong.

Electric Building Loan and Savings Association of New York.

The annual meeting of the Electric Building Loan and Savings Association was held January 11, at 253 Broadway, New York. The former board of officers were re-elected for another year, and are as follows: Col. A. B. Chandler, president; F. W. Jones, vice-president; E. S. Butterfield, secretary; T. L. Cuyler, Jr., treasurer, and J. B. Sabine, attorney. Directors: W. H. Baker, Clarence Mackay, George Clapperton, E. C. Platt, G. H. Usher, T. E. Hurdus, T. E. Fleming, E. Reynolds, M. M. Davis, C. Shirley, A. M. Kemp, J. F. Skirrow, J. F. Cleverdon, G. W. Blanchard, and E. G. Cochrane.

The financial condition of the association is shown in the semi-annual report for the six months, ending January 1, 1901:

ASSETS.

Loans on bond and mortgage	$68,156 35
Loans on stock	1,050 00
Real estate	20,872 82
Interest and premium due	306 68
Real estate sold on contract	4,077 48
Erie railway bonds	1,868 73
Insurance premium advanced	10 00
Cash in bank	1,093 73
	$97,435 79

LIABILITIES.

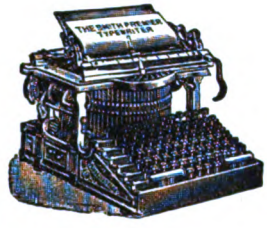
Due shareholders, including dividends credited to date	$91,805 68
Dividends due shareholders on paid-up stock	599 64
Suspense account	374 97
Bills payable, borrowed money	3,000 00
Contingent fund	1,655 50
	$97,435 79

A few hundred yards of 1¼-inch aluminium wire were put up by Lord Kelvin on a Scotch estate somewhat over a year ago, and on this line he is watching the effects of weather.

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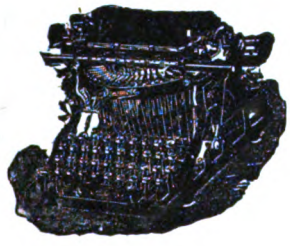
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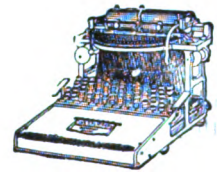


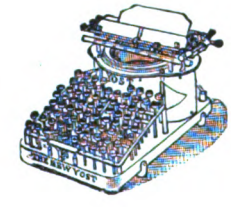
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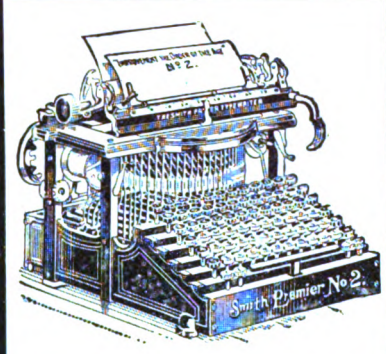
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NEW YORK, February 1, 1901.

Queen Victoria.

The reverential hush that has fallen upon the civilized world in the death of Queen Victoria is one of the most impressive episodes in the history of mankind. In it we recognize the love and esteem which goes out to noble womanhood and high-minded statecraft, marked with a spontaneity never before witnessed, and acclaimed irrespective of national boundaries. We speak of the various "ages," so called, covering the periods of certain great lives and times, as that of Pericles and of the Renaissance, but the Victorian era will always stand out pre-eminently as an epoch of moral, intellectual and physical development, in which the principles of liberty have found grander vindication, and in which the pure, lofty and able personality of the Queen has contributed its own strong impress. England mourns the loss of her Queen, yet in a sense Victoria was the Queen of all lands.

A Telephonic Episode.

The Telephone, Telegraph and Cable Company of America, which was incorporated in November, 1899, with a capital of $30,000,000, and which was formed for the declared purpose of establishing a great telephone system independent of the Bell Telephone Company, purchased during 1900 a controlling interest in the stock of the Erie Telegraph and Telephone Company, the chief subsidiary companies of the Bell system.

Lately the control of the Erie company has reverted to the Bell telephone interests, the motives underlying the transaction, however, and which have excited much speculative comment, being wrapped in considerable mystery. There have been financial complications, and apparently the holding of the big Erie company involved a too complex condition of affairs. The re-transfer of stock was conducted by a banking syndicate, and the present situation, including the exact status of the Erie company itself, is such that a clear perception of just how matters stand is difficult to arrive at.

A new element, however, has come into the direction of the Erie company, and Mr. Charles J. Glidden, its president, the man who was one of its organizers and who has been instrumental in building up the concern from its infancy, successively filling the positions of secretary, treasurer, vice-president and president, has resigned. Mr. Glidden's place has not yet been filled, but it is said, as a director of the company, he will in that capacity continue temporarily to superintend its affairs.

Pupin Patents Sold to American Bell Company.

Pursuant of the policy followed by the American Telephone and Telegraph Company in securing control of valuable telephone inventions, this company has recently concluded negotiations with Dr. Michael I. Pupin, of New York city, resulting in the sale of his patents covering improvements in long-distance telephony to the corporation. This invention, it is asserted, solves the problem of ocean telephony, and will permit of transmission of intelligible speech over long-distance land lines of almost any desired length. Dr. Pupin, who is adjunct professor of mechanics at Columbia University, says the Scientific American, has been at work on the invention for five years, and read a paper entitled, "Telephony Over Cables and Long-Distance Air Lines," in which he discussed his investigations at some length, before the American Institute of Electrical Engineers, at Philadelphia, May 18, 1900. United States letters patent Nos. 652,230 and 652,231 were granted to him on June 19, 1900, the title of the patents reading, "Art of Reducing Attenuation of Electrical Waves."

The problem that Dr. Pupin set out to solve was the reduction of the retarding influences on an electrical circuit caused by induction and capacity, and the balancing of these influences by distributing inductance and capacity through the circuit. This solution had been attempted by other experimenters, but its successful realization awaited the investigations of Dr. Pupin. He arrived at his conclusions by complex mathematical deductions, based on the consideration of the physical analogy between the case of a vibrating string and that of an electrical conductor transmitting waves, in which he determined the dimensions of inductance coils and condensers necessary to add to a given circuit, so as to produce a practically "distortionless" circuit.

After securing his patents here and abroad, last July the inventor offered his discovery to the American Telephone and Telegraph Company. The company immediately bought an option on the invention, extending to January 1, 1901. Under Dr. Pupin's direction an experimental line was constructed from Bedford Station on the Harlem railroad, partly under water, to New Bedford, Conn., thence to Albany and on to Pittsburg. Where the line ran overland the coils were placed

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at intervals of about two miles, and were enclosed in glass insulators on the poles. The experiments were very satisfactory to the officers of the Bell Company, and before the option expired the contract for the purchase of the patents was closed, according to the terms of which it is stated that Dr. Pupin receives about $400,000, and in addition an annual royalty of $15,000 during the life of the patents.

It is believed that the invention would not have been purchased if the question of ocean telephoning had been the only one under consideration, as its great value in the operation of long land lines is probably most important to the company at the present time. Dr. Pupin announces that by the use of his system a saving of about $120 a mile can be effected. The coils which will be used with the telephone wires and cables will be distributed at intervals of a mile on land lines, and at intervals of an eighth of a mile on cable lines. It is announced that the first utilization of the system for ocean work will be on a cable that the American Telephone and Telegraph Company is to build between Florida and Cuba for the United States Government. Steps are also believed to be in progress looking toward the use of the system on a transatlantic telephone line.

MORE SUBMARINE CABLES.—A cable dispatch from Berlin, of January 19, says that the project of a net of cables to cover the world is being diligently pursued by Germany, and is most actively furthered by the Emperor, who made some significant utterances on the subject to Privy Postal Councillor Strecker recently. The latest shape of the project, so far as the Far East is concerned, is as follows: Germany and the Netherlands to jointly lay a cable, which will go through the Dutch Indies, touching at the Natuna Islands, Billiton, Palembang, Batavia, Macassar, Amboina, German New Guinea and the Carolines, with a central point at Shanghai, thence branching from Kiao-Chou easterly to Japan and America. The Dutch Government will lay the cable through its own colonies, and Germany will do the rest. The financing of this project is about concluded in principle. The plan of General von Podbielski, the Imperial Postmaster-General, for gradually raising the annual appropriations to a maximum of 6,000,000 marks in 1920 has been approved by Emperor William. But if private companies, with a State subvention, will undertake the work, General von Podbielski will not object.

DOMINION CABLE INQUIRY.—It is learned in Ottawa that the Imperial Government will appoint a committee to inquire into the question of cable communication. The investigation will be a very comprehensive one, and will not only deal with the present cable services in British territory, and the rates charged, but also will ascertain if it is possible to establish new lines with advantage. The inquiry will begin in February.

TELEGRAPH AGE is convenient for reference.

THE TELEGRAPH.

BY PATRICK B. DELANY.

(*Continued from page 36.*)

In 1846 Alexander Bain, of Edinburgh, conceived the idea of punching telegraphic characters in a paper tape, and then transmitting them by passing the tape through a machine which automatically made contacts through the holes. The message was received on a paper tape moistened with chemicals. An iron pen connected to the line resting upon the top of the tape passed the arriving signals through the paper to a drum over which it was drawn continuously, the drum being connected to earth, so that the pen, paper and drum formed part of the circuit. The discovery of the electrolytic action involved in this operation is said to have been made by Dr. J. Redmond Cox, of Philadelphia, in 1810, and afterwards amplified by Davy and others. This idea of stenciling messages on tapes laid the foundation for the present Wheatstone automatic system.

Bain's system was defective in all its main features. The perforator was crude, and his transmitter and all those used in subsequent attempts could not be relied upon to make contacts through the holes in the tape. The records on the receiving ribbon for high speeds on short lines, or moderate speeds on long lines, were, owing to retardation, run together, so that translation was difficult and liable to error. These drawbacks have all been overcome, one by one, until recent demonstrations by the writer before scientific bodies, over artificial lines and over regular lines in actual practice, have shown that 4,000 words per minute can be plainly recorded from New York to Philadelphia, 1,000 words per minute New York to Chicago, and 200 words per minute New York to San Francisco direct, without repeaters, over a single wire. As an evidence that the speed of this system is only limited by the line, and is in no way restricted by the apparatus, 8,000 words per minute have been plainly recorded over an artificial circuit of 250 ohms, 2 microfarads capacity, with 110 volts. This, with proper computation of letters and signals involved, amounts to over 2,500 impulses per second plainly recorded, the sending tape passing through the machine at the rate of eight feet per second.

With such a system all the mails between any two points in the country can be telegraphed over one or two wires.

The train time will ere long be eliminated from correspondence and the Post Office will be used for collecting and delivering these "electropost" communications.

Postal telegraphy by the Government may, owing to political prejudices, be delayed, but utilization of the postal facilities locally in co-operation with private enterprise for long-distance transmission, will accomplish about the same results. Nor is any special legislation thought to be necessary to bring this about. The Postmaster-General, having authority to contract with railways, steamships, tube companies and others for transportation facilities, surely has the power to contract with a telegraph company to deliver to the Post Office at one point preferred

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letters or "electropost" communications handed to the company at another point, enveloped, addressed and duly stamped, at a fixed price, and within stipulated limit of time. In this way a letter filed with the company at Chicago would be in the carriers' pouch in New York in less time than it would take to transport it from the Chicago Post Office to the train.

Liberal subsidy for the saving of time in mail carrying has been the policy of the Government from the beginning, as shown by the evolution from postboy and packet boat to the cannon-ball express and ocean greyhounds. An hour's reduction in the time of a thousand-mile run on land or an ocean trip commands the preference of the mails by the company achieving it, and, both locally and lengthwise, no expense is spared to expedite letter conveyance. A 10-cent stamp is used to hurry delivery so as to gain perhaps half an hour; sub-offices convenient for distribution are established without regard to expense, incoming steamers are boarded down the bay by sorters, and an army of mail distributing clerks are constantly on the go all over the country for the purpose of saving a little time.

Private enterprise will soon appreciate that this mine of business, amounting to about $75,000,000 annually, is worth competing for, setting the advantage of practically all time saved against the difference in expense. When the public realizes that the post offices throughout the country are but half an hour apart, and that replies to letters may be received in the same day for a charge not much more than the extra delivery stamp each way, it will be more than strange if letter transport by train, for business purposes at least, does not stop altogether.

A few substantially constructed wires over leading routes, taking in all cities of 25,000 inhabitants and over, leaving to the present methods the broker and exchange business, but using the Post Office, its trolleys, tubes, automobiles and bagmen to collect and deliver telegraph letters, will work an amazing change in correspondence in a short time. The Post Office cannot complain so long as it gets its postage at each end and without the expense of intermediate transportation.

This revolution cannot come by any electro-magnetic system. The Morse will continue to hold its place for speculative exchange business and train dispatching, but the great bulk of ordinary business will be carried by the system admitting of increase in volume and decrease in cost. Further improvements in electro-magnetic telegraphy need not be looked for. The limit in multiple and "phantom" circuits over a single wire has been reached. In fact, deterioration may be looked for, owing to the spread of trolley and power currents through the earth. In many notable instances already quadruplex workings have been seriously impaired, it being next to impossible to maintain a balance against a change of potential varying from zero to 60 volts, which is not infrequent between working points. It is useless to talk of increasing speeds by more sensitive apparatus, as has been proposed; the present instruments are much too susceptible to the stray currents which find their way into lines at every ground connection. Present indications are that ere long all balanced systems of telegraphy must be provided with metallic circuits or given up.

The chemical automatic system employs no electro-magnets, has ample margin for recording over and above all variations from extraneous causes, and is only limited in speed to the carrying rate of the wire itself.

The telephone is surely destined for the greatest domesticity, locally. It will be "a household word," but for long distance it must always be an emergency means, on account of the cost. Sixty words per minute (a fair average) or 30 words for each wire, will not admit of much cheapening. The time is coming, however, when the telephone and the machine telegraph will be associated in a way that will appeal to every telephone subscriber extensively engaged in business. Leading concerns will have a machine telegraph set which will enable them to shoot into a correspondent's office, similarly equipped, 1,000 words or more in a minute, to be transcribed at leisure by the typewriter, the message or letters having been prepared by the sender's typewriter, so that any business concern or newspaper may have private electrical mail facilities as many times a day as they wish to call up, and have ample opportunity for conversation within the telephone time limit as well.

These advances in cheap and general telegraphy, together with the spread of the uses of the wireless system in its legitimate field, where wires are impracticable, will all come about while the century is still young. The evidences being already here, prophecy has no place.

What the centenarian of a hundred years hence may see a prophet should leave to his son to prophesy. In the way of telegraphy, doubtless, the ships amain will hold converse with each other, and correct their chronometers with the last observation a hundred miles away. They will be in constant communication with the shore through the air or by wires on the bed of the ocean, but as the trip from the Hook to the Lizard will be done in a day, and probably without touching the water, only the over-anxious will want a dispatch. Communication with Mars has already been pre-empted, and *seeing* by electricity may be no longer visionary. Our five senses may, forsooth, all be "wired" wirelessly.—Electrical World and Engineer.

THE GROWTH OF THE TELEPHONE.—The American Telephone and Telegraph Company, of Boston, Mass., reports its output of instruments for the year ended December 20, 1900, as follows:

	1900.	1899.	1898.	1897.
Gross output..	639,766	661,909	354,559	241,271
Returned.....	280,703	206,654	148,834	92,867
Net output....	359,063	455,255	205,725	148,404
Total outstanding Dec. 20..	1,939,568	1,580,505	1,125,246	922,253

One of the comic papers the other day perpetrated a joke which will be appreciated by all participants in strikes. One working man asked the other: "How about your strike? Was it a success?" "Oh, yes," replied the individual addressed, "it was a howling success; we all got our jobs back."

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The Telegraph in the Nineteenth Century.

BY WM. MAVER, JR.

The development and growth of the electric telegraph during the nineteenth century is the history of its development for all previous centuries, for prior to the opening of this century there was, strictly speaking, no electric telegraph. Indeed, it may be said without much exceeding the limits of accuracy that the history of the development and growth of the electric telegraph for the last two-thirds of this century would contain nearly all that is important concerning that art.

Telegraph systems there were before the electric telegraph. There were telegraph systems even before the Christian era. Writing in 300 B. C., Polybius describes a telegraph system then in use for military purposes. This was a visual telegraph system in which torches were set upon a wall or walls and a certain number and position of the lights were arranged to represent the letters of the Greek alphabet. By changing the position and the number of the lights to correspond to the prearranged plan, it is easy to see how words could be spelled out at one station and received at another. Analagous to this system was the semaphore visual telegraph devised by Claude Chappé, of France, in the latter years of the eighteenth century, and which was, in a more or less modified form, in full vogue throughout Europe in the first half of this century. This system, as its name indicates, "a sign I bear," employed a post and swinging arms, as do the familiar semaphores to be seen along every railway to-day, but the Chappé semaphore was a different appearing arrangement from the ordinary railway semaphore. Thus, there was a cross-arm, about 14 feet long, on the top of the post. At each end of this cross-arm a shorter arm was pivoted, and by a system of pulleys and ropes these arms could be placed in many different positions. The letters of the alphabet were allotted certain positions of the arms, and thus one familiar with these positions could transmit or receive messages by the proper manipulation of the arms. This system, like all such visual systems, was quite limited as to the distance to which signals could be transmitted between any two stations, and in times of fog could not be operated at all. It is told that during the peninsular wars, when Wellington was fighting the French, a message was received in London by the Admiralty semaphore system, stating "Wellington defeated." A fog intervened, and no further information could be obtained. When the mist cleared, the consternation created by the receipt of the above news was dispelled by the joyful intelligence that the message should have read, "Wellington defeated the French."

It has been well said of the invention of the electric telegraph that it was not the work of any one man. Perhaps the most that can be said of any one man in this relation is that he was the inventor of a particular system of electric telegraphy. The early and late history of this art shows that its advances have invariably followed upon the discovery and announcement of laws and facts of electricity and magnetism. It had, for instance, been known for a long time that many light substances were attracted by an electrified body. Availing of this knowledge, it was suggested as early as 1753, in the Scot's Magazine, that if 26 wires were provided, one for each letter of the alphabet, and at the far ends of the wires light pith balls were suspended, messages could be sent over the wires by touching the near end of a wire representing a given letter by a frictional electric machine, when the pith ball at the distant end of the wire would be attracted. This idea was realized in 1774 by Lesage, who constructed a short experimental line of 24 wires in that year.

The discovery by Volta, in 1800, that electricity could be generated by chemical means was followed by the discovery by Nicholson and Carlisle that water and certain salts could be decomposed by the electric current. Acting upon this knowledge, Sömmering, of Munich, in 1808, devised and operated experimentally an electric telegraph system employing also 25 to 35 wires for the transmission of letters and numerals, in which this principle was employed, the voltaic current being caused to decompose water held in small glass tubes at the remote terminals of the wires. The bubbles of hydrogen and oxygen, appearing in certain tubes, indicated the letters transmitted. This was the first telegraph system in which the voltaic current was employed.

Up to this time and for some years thereafter, the effect of an electric current upon a magnetic needle had not been discovered. The impracticability, however, of making a commercially successful electric telegraph in which 25 or more wires between stations were necessary for the transmission of a single message, was evidently apparent even at that early time, for we find Mr. Francis Ronalds, of Hammersmith, in 1816, experimenting with an alphabetical telegraph system in which but one wire was used. In Ronalds' telegraph there was a dial at each station, on which were placed the letters of the alphabet. The dials rotated synchronously. In front of each dial was placed a screen in which a notch was cut, so that as the dial revolved one letter at a time was seen through the notch. Pith balls were connected to the wire at each end. At a given signal the clockwork was started, and as a desired letter appeared behind the notch the wire was charged momentarily with frictional electricity and the pith ball was actuated. The letter at that moment appearing through the opening in the screen was noted, and in that way messages were transmitted. This was the first synchronous electric telegraph. Ronalds offered this telegraph system to the British Government, purposing to build a telegraph system around the entire British coast, but his offer was rejected in the following language: "Telegraphs of any kind are now wholly unnecessary, and no other than the one now in use will be adopted." The one then in use was the visual semaphore telegraph. It may, however, be noted that a subsequent British Government conferred the honor of knighthood upon Ronalds for his scientific work. The incredulity of the British Government at this

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early period—1815-1820—as to the value of electric telegraphs, need occasion no surprise when it is known that the semaphore telegraph system was not entirely displaced by electric telegraph systems in Europe, or even in this country, until the middle of the century.

The next, and up to that time the most important, practical development of the electric telegraph followed ultimately upon Oersted's discovery, in 1820, of the action of an electric current upon a magnetic needle; namely, that the needle was deflected to the right or left, according to the direction of the current in a wire held parallel to the needle. Taking advantage of this discovery various "needle" telegraph systems came into existence, and were at one time extensively, and it may be added, exclusively, employed in Europe and Great Britain, and, indeed, still are in limited use there. These "needle" systems, as intimated, were operated on the principle just referred to. A magnetic needle was pivoted in the center of a coil or coils of wire, constituting in effect a galvanometer, and a pointer which was attached to the needle moved in front of a dial. Prearranged deflections of the pointer to the right or left signified a certain letter of the alphabet. The deflections to the right or left were produced by sending over the wire or wires, pulsations of current of one polarity or alternations of both, as required by the letter to be transmitted. The first of these needle telegraph systems was devised by Schilling, of Russia, who employed five needles and one wire for each needle. Gauss and Weber, at Gottingen, in 1833, devised and operated an experimental needle telegraph system, using but one wire on a metallic circuit, three miles in length.

Prior to this time it was supposed that a metallic circuit was necessary when the voltaic current was employed, although in many of the early experiments with frictional electricity the earth had been used for this purpose. Shortly thereafter, however, in 1837, Steinheil, of Munich, experimenting in conjunction with Weber, discovered that the earth could be used as a return wire for a voltaic current. This discovery of Steinheil's was of vast importance in the subsequent development of the electric telegraph, as must be any discovery or invention that will at one stroke, so to speak, practically double the number of existing wires.

Curiously, too, the notion had prevailed up to this period that it was necessary to use wires insulated throughout their length, even when supported on poles, to keep the electricity on the wires. The expense of thus insulating the wires was naturally considered a serious obstacle to the extension of the electric telegraph. Weber, however, removed this obstacle by the important discovery that it was not necessary to insulate aerial wires except at the points of support. Another deterrent to the employment of voltaic electricity in electric telegraphy was the fact that up to 1836 a *constant* primary battery had not been invented. The invention by Daniell, of Edinburg, of a constant zinc-copper battery in that year, and Sturgeon's previous device of amalgamating the zinc, therefore very materially aided the advancement of the electric telegraph.

In England, Wheatstone and Cooke were also assiduously at work about this time, 1835 to 1840, upon needle telegraph systems, and to these inventors belong the credit of having pushed to a commercially successful conclusion the first electric telegraph system. Not that they were the first inventors of such systems, but that they succeeded in working out the details necessary to provide a simple and economical system, which went into very extensive use in Great Britain, especially in the railroad service. These gentlemen evidently had the commercial combined with the inventive talent, and took the wise precaution to patent their various devices in electrical telegraphy, for which it is recorded they received from the company formed to exploit their invention over $800,000.

Thus far the discovery of Sturgeon, of England, in 1824, that an electric current flowing in a coil of wire surrounding a piece of soft iron would magnetize the iron, and when the current ceased the iron would lose its magnetism, had not been availed of in electric telegraphy, although Booth, in Dublin, in 1830, and Henry, in 1831, had shown that signals could be transmitted by means of the attracting power of an electromagnet upon its armature. It remained for S. F. B. Morse, of New York, to put into practical operation the electromagnetic recording telegraph which bears his name, in which the armature of an electromagnet produced on a strip of paper dots and dashes representing the letters of the alphabet, the electromagnet itself being operated by the opening and closing of a key in the line circuit.

The first Morse telegraph line was constructed after many discouragements in 1844, out of public funds, between Baltimore and Washington, and was a success. The progress of electric telegraphy into public favor in this country was, however, at first slow. High rates for messages, more or less imperfect service, due largely to poorly constructed lines, and much litigation to preserve the monopoly of the electric telegraph in this country to the Morse interests, were conducive to this slow progress. In 1838 Morse had gone to England to obtain a patent for his invention, but it was refused to him by the Attorney-General, on the score of previous publication, a rather flimsy excuse it would seem, in view of the facts, which briefly were that a statement had appeared in a magazine to the effect that Morse had invented an electromagnetic telegraph. But, a Roland for an Oliver, when Alexander Bain, of Edinburgh, came to this country to obtain a patent for his chemical automatic telegraph, it was refused him on the ground that it infringed Morse's claims. Bain employed a device for perforating long and short holes in a strip of paper, the latter being used for the transmission of long and short pulsations of current over the wire. At the receiving end he employed a strip of paper moistened with a suitable chemical solution, which was decomposed by the passage of current through it, thus producing long and short marks on the receiving paper. He, it is true, used an alphabet of dots and dashes

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analogous to that of Morse, but as Morse's most important claim was for an electromagnetic telegraph, and Bain did not employ electromagnetism in any shape in his system, it is not easily seen in what the infringement consisted. Bain, more fortunate here than Morse in London, pressed his claim in the Supreme Court at Washington, and a patent was allowed. It is doubtful, however, if a British patent would have been of much pecuniary value to Morse had he obtained it, inasmuch as, during the life of his American patent, the Morse system was very sparingly employed in Europe or Great Britain, the various needle and dial systems having secured a strong foothold in those countries.

The next important advance in electric telegraphy in this country was due to Royal House, of Vermont, who invented, in 1846, the printing telegraph system, which bears his name. This invention was looked upon at the time as one of the wonders of the age. It was the precursor of the "ticker" and similar printers of to-day, printing its messages on a strip of paper in Roman letters at the rate of 50 to 60 words per minute, as against 20 or 30 words by the Morse system. Dial telegraph systems, due to Wheatstone and others, were also much employed in the middle of the century. These were also known as pointer telegraphs, because of the use of a pointer which, actuated by "step by step" mechanism, passed around the face of a dial, on which were placed the letters of the alphabet, and stopped momentarily opposite a selected letter. Both the House printer and the dial telegraph were believed, in Europe, to give greater accuracy than the Morse system, and if the statement made at the time was true, to the effect that an examination had shown that there was an average of one error in every fifth message transmitted by the Morse system between two important American cities, there was some reason for the belief.—Electrical Review.

(*To be continued.*)

ACCORDED FIRST PLACE.—A contemporary in recording the progress of the century just closed says that in the wide field of invention there are so many claimants for fame that no one perhaps can make a just decision and say who was the greatest inventor of the nineteenth century. The first thought, however, is to give the honor to Professor S. F. B. Morse, the inventor of the electric telegraph, the man who made it possible for men to talk to one another clear round the world, the man who did more to overtake criminals and thereby to prevent crime, than all the detectives who ever lived. Looked at from another side and the case seems to be in favor of Edison, the man who has given us the talking machine, the electric light, the quadruplex telegraph system, the first electric trolley line and a score of other important inventions.

The articles, "Some Points on Electricity," published regularly in TELEGRAPH AGE, are filled with practical information for the up-to-date operator. Send for a sample copy.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

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Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

The Pacific Cable Bill.

The movement to secure consideration for the Pacific Cable bill passed by the Senate last session has culminated in the signing of a petition to the Speaker and Committee on Rules of the House, asking that a day be fixed for the consideration of the bill. This bill provides for a Government cable, to be laid to the Philippine Islands, as opposed to the bill providing a subsidy of $300,000 a year for 20 years for a private cable.

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CORRESPONDENCE.

PROPER AMOUNT OF CURRENT.

Editor TELEGRAPH AGE:

Will you kindly inform me in your next issue what is the proper amount of current for a single Morse wire, for a duplex and for a quadruplex; also, what should be the minimum insulation resistance per mile of a wire in the worst of weather. Your reply will oblige,

Yours truly,

Denver, Col., January 10. W. H. S.

[For good, all around service, 150 ohm single line relays should have, at least, 40 mil-amperes of current; neutral quadruplex relays, 45 to 60 mil-amperes; polarized relays, on quadruplex circuits, 15 to 18 mil-amperes for value of the "short end," and polarized relays on duplex circuits, 25 mil-amperes.

The last question cannot be answered within any satisfactory degree of accuracy. The nature of "escapes" and the causes which conduce towards bringing about the same are too varied to be measured by any one rule.

Some instruments are affected more than others. Polarized relays, for instance, respond to direction of current, through escapes which would completely destroy the usefulness of single line and neutral relays, while the latter class will themselves frequently work better through a heavy escape on one circuit than they will through a slighter one on another. Everything depends upon whether the leak is "constant" or not.—ED.]

RECORDING SALES AT THE STOCK EXCHANGE.

Editor TELEGRAPH AGE:

The recent unprecedentedly heavy transactions in the New York Stock Exchange, culminating in the record-breaking figures of over two million shares on Monday, January 7, have caused some press statements of an erroneous character to be made, reflecting upon the method of collecting sales on the Board room floor for transmission over the tape, and also by implication upon the staff of telegraphers who make these collections. As I occupy an active position among the corps of reporters employed by the Stock Exchange for this arduous duty, I am able to make an exact explanation covering the leading particulars governing the system through which dealings are so recorded.

There are eighteen expert telegraphers distributed throughout the Board room with specific stocks to look after. In noting sales at the opening of business, when the excitement is, as a rule, the greatest, it is difficult to follow the volume of trade.

In the course of a few moments, however, it subsides sufficiently to enable the reporter to confer with one or more of the brokers present, confined in trading to certain stocks, and correctly ascertain what sales had taken place both in respect to parcels and in the aggregate. These particulars are then immediately taken to the distributing reporters, and are promptly sent out over the wires. To one unfamiliar with the evidence of the ticker records in its influences upon people in outside offices, it is well to state that brokers are all eager to have their respective purchases or sales appear upon the tape, to serve as confirmatory evidence that certain transactions committed to their care had been made in reality, and not presumably only.

It will thus be seen that what escapes the watchful eye of an expert reporter, is almost sure to come to light through the reminder of the interested broker, namely, that the trade he was concerned in had not appeared in due time on the tape, and must be printed.

As a matter of opinion, an old member of the Stock Exchange, who is familiar with every working feature of the organization, figures the overlooked transactions of a busy day, not to exceed 1 per cent. of the whole, an estimate shared by many others of equal experience.

The telegraphers engaged in reporting stocks, are necessarily quick and accurate, and to a degree that ordinary work does not exact. They are under the supervision of a superintendent of telegraph, and are unassisted by any messengers or pages, as several newspapers would have the general public believe. The majority of the reporters are among the most skilful telegraphers in the country, and it is not an easy task to replace them when vacancies occur.

New York, January 19. W. A. HENNESSEY.

"6 PIK."

Editor TELEGRAPH AGE:

He was known as "6 Pik" on account of his freak sending. He was manager and operator in a branch office some years ago, and handled a great many messages for Philadelphia, and always sent "6 Pik" for Philadelphia, and also added dots to his 4s and 8s. He was a rapid sender, and when the regular operator was not at the New York end the business was brought down in a bunch to the main office, as there was but one man capable of translating his combinations. In those days such a sender was called a freak, for the operator of that time wrote Morse, taking pride in the correct formation of the characters. In this day of degenerate Morse sending, the tables are turned, it appearing to be the rule instead of the exception for operators to overrun their ps, 6s, 4s and 8s. Another thing is noticeable among this class of senders, namely, words ending with er are almost invariably sent or. The operator who is unconscious of errors in his own transmission cannot have a safe ear for receiving. The dangerous habit is on the increase, and strong measures should be taken to check its growth. These "6 Pik" senders are heard in exchange offices and on cable circuits, and how they manage to escape the yellow envelope is a mystery, if they do. I hope TELEGRAPH AGE will stir the matter up for the mutual benefit of the fraternity and the telegraph companies. Perhaps some reader may be able to suggest a remedy. I hope you will hear from others.

New York, January 21. C.

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TELEGRAPH OPERATORS IN THE PHILIPPINES.

BY F. E. GRAIN.

A most pressing need for telegraph operators has existed in Luzon, Panay, Cebu, Negros, Mindanao, Gimeras and other of the leading islands of the Philippine Archipelago, where Government lines have been put in recently. The linemen have been putting in new lines much faster than the operators can be furnished to supply the stations. Very many of the stations which were fitted up with a view of permanent occupancy have already been abandoned because of lack of telegraph operators. The Government is constantly sending over new men, but not fast enough to meet the requirements, for hardly a day passes that a new station is not opened in some part of the archipelago. Within a very few months the work of connecting all of the islands by cable will begin. The United States cable ship "Burnside" has a considerable portion of this cable aboard, and, with Manila as a center, the cable lines will extend to the most remote points in the Philippine group. At the present time the only islands joined by the cable system are Panay, Cebu and Leyte, which are wired with Luzon. The establishment of the new connections so as to connect all of the numerous islands of the Philippine Archipelago will necessarily call for the employment of additional stations, and of course a telegraph operator in each station, and in some cases, where there is much night work, there must be two operators. The advent of the cable lines also means that there will be additional stations established in the interior of the different islands. At present the island of Luzon is well provided with stations, and the interior can be reached at any time. Panay Island is also liberally dotted with telegraph stations, and the movements of the troops can be known at all times to the department commander. Still there is a severe handicap due to shortage of men on both of these islands. The writer recently met the telegraph operator of San Jauquin, one of the coast stations, going into Iloilo, where he had been ordered to report to take charge of the office at Jaro. There was no other way to get a man for the Jaro station than to close up the San Jauquin station. I stopped over at Tigbauan one night and found the operator ill with fever, and his superior officers were trying hard to get a man to take his place, so as to "relieve" him and permit him to go to the hospital. But none could be had for several days, and, the Tigbauan station being a central point, several branches depending upon it for transmission of messages by telegraph or telephone, the office could not be closed, and the ill operator stuck to his post, until finally a man was secured by closing up an office of minor importance.

The Government is sadly in need of experienced operators, and when the new cable lines are established, the need will be greater than it is at present. There are now, to the knowledge of your correspondent, a number of important offices closed simply for lack of men. One of the reasons why many men do not enlist for this service is that the pay does not seem to them to be as much as it ought to be.

The pay is indeed low, but it must be remembered that the Government provides everything, including rations, lodging, medical attendance, clothing, etc. The pay of a first-class private in the signal corps is $20.40 per month. Many operators enter the service in this capacity, although some are not thoroughly qualified, and are obliged to enlist as second-class privates, in which case the pay is a little lower. After a short service, however, the second-class private is usually appointed a first-class private. In a year or so he becomes a corporal, with a slight increase in pay and privileges. In course of time he may become a sergeant, in which case his pay begins to jump upward, and if he passes through the stages to chief operator, he will find that he is drawing a salary of $40 to $50 per month, and nearly all clear gain.

The writer has been here about a year in the field, and has met with many operators direct from home, most of whom are glad to get the outing offered as a change from the confinement of office work in their former occupation. Often the new man arrives, and instead of being put directly into an office he is ordered to join the linemen, in which case he usually finds that he has some rough soldiering to do. All his work is performed with a rifle slung to his back or a revolver in his waist belt, ready to drop and take shelter and open fire upon any enemy in the brush. Linemen are particularly distasteful to the rebels of the islands, and they take every opportunity they can to harass the little bands of workers who are stringing wires across the newly garrisoned country. Ordinarily a guard of from six to eight men accompany the linemen, in which case there is not so much danger of molestation.

There are periods of the year in the group during which the heavy gales sweep the islands from shore to shore, carrying everything before them. I have witnessed the disastrous effects of several of these gales. Shortly after the gale begins, the operators, linemen and all prepare to make repairs. As soon as the gale shows signs of abating, the operators and the linemen secure the services of dozens of natives and then the work of replacing broken poles and repairing insulators and wires begins, so that in a day or two the lines are once again in operation. Often the enemy takes advantage of the gales to do further damage to the lines. If natives are caught near the lines by soldiers or linemen the orders are to shoot any who are acting suspiciously or have tools in their hands for cutting wires. But when the gales rage the native can readily sneak up to the lines and help the gales in their work of destruction by tearing down weakened poles and breaking insulators with rocks, so that the extent of the destruction is sometimes very great and the loss heavy, for the reason that supplies of cross-arms and insulators are not in abundance here, although poles can be cut from the forests readily.

Applicants for appointment to the signal corps

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of the army in the Philippines must be physicaliy sound. I have seen many good men rejected from some defect of the eyes or lungs. Even before the applicants are put through the test examinations in the United States concerning their knowledge of line work, telegraph operating, signalling, etc., they are examined physically. This is a severe climate on most men, and few can escape the ravages of one or more of the numerous fevers of the islands. There appear to be fever microbes in the air, for the men never drink any but boiled water, and every precaution is taken to prevent fevers. Yet I have seen many of the men stretched out day after day on the floor or ground of their tents suffering from fever. Often the fever hangs on for many days and will not cease until the man is sent to the hospital for an ice bath. The ice bath drives the fever out of his system and puts him on his feet for a few months, when he is likely to get another touch. Series of such fevers bring on typhoid. But it may be two years or more before anything of the sort occurs, and before the two years have expired the man is usually relieved and sent to a station in the United States. It is believed that definite plans have now been made so that the men will have to serve only 18 months in the Philippines, when they will be relieved and permitted to serve a year in the United States before again returning to the islands.—Electrical World and Engineer.

Congressional Roll-Calls and Voting by Electricity.

A novel plan which is said to be the result of considerable labor on the part of Representative Otey, of Virginia, is to be submitted to the House for its possible adoption. According to the Electrical Review, Mr. Otey wishes to expedite roll-calls in Congress and has invented a machine worked by electricity for that purpose. His idea is to have a board placed directly at the rear of the speaker's desk and in front of the main entrance, such electrical apparatus connected with each member's desk by wiring as would enable him to touch a button and display his vote, aye or no, by means of incandescent lights placed opposite to his name on the board. This would enable the entire house to see exactly what the members were doing, the clerks could figure up the totals in a very short time, and there would be no delay in getting an expression of sentiment on any subject from the Congressmen. At the present time the yea and nay method of voting occupies about three-quarters of an hour, putting the members in a bad humor if they are in a hurry to get the business of the day finished.

SWEDISH TELEGRAPHS.—An official report just issued shows that in 1899 the Swedish telegraph service dealt with 2,644,000 messages, of which a little over one-half were foreign, 3,650 being press telegrams. The correspondence was greatest with Germany, Great Britain coming next, with 7,000 messages less. There were in the country 178 stations under the Government service, 310 railway telegraph stations, and 894 stations belonging to private companies.

Serial Building Loan and Saving Institution.

At the annual meeting of the Serial Building Loan and Savings Institution, of New York, held January 15, at 195 Broadway, the entire old board of management were re-elected as follows: D. B. Mitchell, president; E. F. Cummings, vice-president; Thomas M. Brennan, treasurer; Edwin F. Howell, secretary; J. B. Sabine and A. A. Rich, attorneys. Directors: John Brant, T. F. Laing, E. W. H. Cogley, W. J. Quinn, Max Wustrow, F. W. Gregory, W. C. Burton, T. A. Brooks, M. J. O'Leary, Eugene F. Vacheron, T. E. Fleming, M. W. Rayens, H. G. King, G. H. Schnitgen and William Holmes. Auditors: R. M. Nesbit, James R. Beard and George H. Murphy. Bankers: The Mercantile Trust Company, New York.

The following is the semi-annual statement for the six months, ending January 1, 1901:

ASSETS.

Cash on hand	$2,745 89
Loans on mortgage	454,154 40
Loans on shares	24,218 00
Installments unpaid	15,090 00
Interest unpaid	3,788 23
Premium unpaid	884 42
Real estate	58,821 21
Real estate sold on contracts	23,865 63
Due from members	1,977 21
Furniture and fixtures	527 28
	$586,072 27

LIABILITIES.

Installments	$389,628 00
Earnings credited	76,406 07
Matured shares	42,800 00
Full paid shares	12,900 00
Borrowed money	23,173 04
Due on loans	14,282 18
Due individuals	987 96
Earnings undivided	14,639 27
Surplus	11,255 75
	$586,072 27

The auditing committee, comprising Robert M. Nesbitt, James R. Beard and George H. Murphy, have examined the books and accounts of the secretary and treasurer and certify to their correctness.

WHAT CONSTITUTES "REGULAR" SERVICE.—The people and the press of Prince Edward Island, Canada, demur to the practice of the Anglo-American Telegraph Company closing its offices on that island at 8 o'clock in the evening, and thereby shutting out all outside telegraphic communication and depriving the papers of receiving night press reports. As the telegraph company receives an annual subsidy of $2,000 from the Dominion Government for maintaining "regular" telegraphic communication between the island and the mainland, the courts will probably be called upon to put its interpretation upon the extent of the obligations involved.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

PHILADELPHIA, PA., WESTERN UNION.

The 13th annual meeting of the Aid Society was held January 14. The meeting was the most successful, both in a business and social way, in the history of the organization. About 100 members were present, and instead of a stormy meeting, which was predicted, everything was peace and harmony. The large amount of business to be transacted precluded the possibility of having the musical entertainment, which in the past became such a successful feature of the meetings. During a recess, however, Miss K. Bullin and Mr. C. M. Christine entertained the members with vocal and piano solos. At the conclusion of the business part of the meeting a supper was served, followed by music and dancing.

The report of the Aid Society for the year ending, December 31, showed a membership of 320, a net gain of 20. The total receipts were $1,851.11, a gain of $162.03. The disbursements amounted to $1,793.21, an increase over the previous year of $773.61. The cash surplus was $2,290.92, an increase for the year of $57.40.

The following officers for 1901 were elected: Frank E. Maize, president; James H. Wilson, vice-president; W. E. Vanarsdall, recording secretary; J. E. Janney, financial secretary; H. W. Hetzel, treasurer. Executive committee: Miss C. J. Grimley, Mr. T. J. Murphy, Miss Ella Hellings. Trustees: W. A. Clark, J. H. Wilson, W. W. Donnelly. Auditing committee: H. Wobensmith, Miss M. A. Golden, C. M. Christine. Entertainment committee: John A. Sisk, R. C. McCredy, J. N. Fitzpatrick, V. G. Hodgins, Charles S. Culp.

Col. Joseph Greene, of this office, recently celebrated his 68th birthday anniversary. Fifty-five years of Mr. Greene's life has been spent in the telegraph business. He is still hale and hearty, a good operator, working steadily, and bids fair to live many more years.

D. C. Shaw, another old timer, well known to many readers of TELEGRAPH AGE as "Owney Gagan," celebrated recently his 55th birthday. Mr. Shaw came from Bath, Me., where he was manager for the Western Union for many years.

Much sympathy is felt for E. J. Hennessey in the loss of his father, who died recently.

Wire Chief E. L. Maize, while on his way to the office recently, slipped on the ice, spraining his wrist very severely.

R. W. Shade has resigned to accept a position with The Associated Press at Harrisburg.

BUFFALO, N. Y., WESTERN UNION.

The Buffalo Electrical Aid Association held its 13th annual meeting on January 14. The official report shows a membership of 366, and cash on deposit $3,286.59.

At the election of officers the following ticket was chosen: William Walker, president; William Barnfather, vice-president; George W. McCoppen, secretary; R. B. Ferguson, treasurer. Executive committee: E. A. Sawkens, George Sallaway, F. E. Krettner, T. E. Hogan, Miss T. G. Toner, Miss Reynolds and Miss R. A. Cheney. Auditing committee: William H. Maibour, Thomas O'Brien and E. F. Cullen.

Miss Emma McDonald is on a six months' leave of absence.

Miss B. C. Donnelly has returned to duty, after an illness of two months.

George Phillips has been appointed operator at the William street office.

C. A. Schudt succeeds F. A. Bump at the same office, the latter having accepted a position in Richmond, Kan.

Miss A. Fitzmaurice is seriously ill.

Mr. Frank R. Knoll has resigned, and now fills the position of repeater chief at Triangle office of the American Telephone & Telegraph Co.

Miss L. L. Walther was appointed manager of the Depew, N. Y., office.

Harry F. Johnson is now manager of the Main street office, vice Joseph McGowan, appointed collector for this company.

Miss Lillian Demming, formerly of this office, but now with the Buckingham printing system, has gone to her home on a vacation.

Resigned: Robert E. Magner, F. R. Moll, V. C. Poe.

Mr. John McNerny, of Dunkirk, N. Y., paid us a visit recently.

CINCINNATI, O., NOTES.

Business has kept up well during the entire winter, the substitutes being able to make more than full time, and the regular men being frequently called upon for extra duty. This is something unusual for this season of the year.

Mr. W. T. McWhorter and Miss Emma Langenheim, both members of the Western Union force,

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were married on December 26th. They were handsomely remembered in a substantial manner by their many friends.

W. F. Hart, chief operator at the "Enquirer" office, is seriously ill with typhoid fever, while A. J. Herrman, of the same office, has just returned to duty after a two weeks' siege of the same disease.

Among those on the waiting list here are H. T. Kilgore, formerly of New York, and Charles Kline.

J. E. Neville, of the Postal, is quite sick with grip, which is almost epidemic here.

The eleventh annual session of the Morse Mutual Benefit Association was held at the Palace Hotel Saturday evening, January 12. Preceding the meeting an elegant banquet was served, at which there were seated over 60 members, among whom were many ladies. While the reports of the association show a disbursement of over $865 in sick benefits during the past year, thus far exceeding any previous year in its history, the financial condition is first-class in every respect, there being a surplus fund in the treasury of $1,526.50.

The annual election of officers was quite spirited, and resulted in the return of the present incumbents as follows: Geo. Derfus, president; J. E. Neville, vice-president; J. F. Colligan, secretary, re-elected unanimously for his eleventh consecutive term, and F. Minning, treasurer. The Executive Committee is made up of W. S. Slover, W. H. Keer, W. A. Keyt, R. J. Williams, H. Beckmeyer, R. H. Buchanan, W. F. Othling. Auditing Committee, J. R. Rey, W. E. Dunham and W. D. McGarry.

Mr. Philip Joseph, who for a number of years has been manager of the Western Union Telegraph offices in the banking district of this city, was married January 12 to Miss May Zinglein, a popular society lady of Westwood. The happy couple left shortly after for a honeymoon in Florida.

John N. Jacob, who has been suffering with grip for some weeks, has returned to duty.

John F. Colligan is confined to his home with the same complaint, but is slowly recovering.

A brisk fire in the building adjoining this office on January 20 filled the office with clouds of smoke, and caused the night watch signal department of the district to be flooded with water, rendering it useless for several hours. No damage was done to the telegraph departments.

Albert S. Ayers, late of the Scripps-McRae Press Association, Washington, D. C., is now located here with a broker.

CHICAGO, ILL., WESTERN UNION.

Mrs. Hammond is alone and forsaken in the gallery, Mr. Basset having moved his headquarters to the ninth floor, at east end of the loop switch.

Miss Dot McCracken has left the Long Distance Telephone and is with us again, her return being heartily welcomed by all.

Division Chief James Cummins, is ill at his home with rheumatism. During his absence Mr. Charles Fuhrman is acting as chief.

The mention of Charles Fuhrman's name recalls to mind some fast work on the St. Paul wire performed by him, and which was referred to in this paper some time ago, he having broken all previous records for fast sending and receiving the greatest number of messages in one day.

Mr. Jerry Merenus is hobbling about on a pair of crutches, nursing a sprained ankle.

Mr. Harry Jones has been sick for a few days.

Mr. John Martin is also reported ill.

Mr. Leo Peters was a visitor here a few days ago.

Mr. Arthur Galey carried off the first prize, a beer stein, on the evening of the election of officers of the Morse Council.

John S. McCurdy, wire chief at our Board of Trade office, was publicly installed as Worshipful Master of Ashlar Lodge, No. 308, A. F. and A. M., on January 8. Dancing and cards followed the installation ceremonies, and continued until a late hour. Quite a number of prominent telegraphers were present to enjoy the occasion. This Lodge has on its roll the names of between 20 and 30 telegraphers.

The officers-elect of Morse Council National Union for 1901, were duly installed on Saturday evening, January 19, by Senate Deputy D. W. Manchester, assisted by Charles Werne, as Marshal. They are as follows: William Leary, president; L. E. Westrope, vice-president; F. M. Crittenton, ex-president; W. H. Izzard, speaker; F. J. Scherrer, secretary; Henry Behl, financial secretary; J. S. McCurdy, treasurer; S. A. Schulkins, chaplain; O. B. Sims, usher; C. F. Fuhrman, sergeant; G. H. W. C. O'Brien, door keeper; Henry Jahn and H. C. Mahoney, trustees; H. D. Baker and J. J. Seidschek, cabinet delegates.

The Council shows an increase in membership of 29 for the past year, making a total membership of 177, and has the distinction of being in better financial condition than any other Council in the order in proportion to its membership.

KANSAS CITY, MO., WESTERN UNION.

Miss Florence A. Thompson has gone to San Antonio, Texas, on an indefinite leave of absence, hoping to be benefitted by the change in climate and to overcome a throat trouble which has been a source of annoyance to her.

Deafness Cannot be Cured

by local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure deafness, and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian Tube. When this tube is inflamed you have a rumbling sound or imperfect hearing, and when it is entirely closed deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but an inflamed condition of the mucous surfaces.

We will give One Hundred Dollars for any case of Deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars, free. F. J. CHENEY & CO., Toledo, O.

Sold by Druggists, 75c.

Hall's Family Pills are the best.

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The many friends of Mr. Samuel McConnel will regret to learn of his loss of his little 5-year-old daughter, who died of scarlet fever, January 16. The remains were taken to Mexico, Mo., for interment.

Mr. William Norman and Mrs. Ida Phillips were Leavenworth, Kan., visitors January 19.

A child was born to Mr. and Mrs. William Walker on December 31.

HAVANA, CUBA, NOTES.

Among the recent arrivals in Havana were Operators Cantwell and Olsen, who will work at this point.

A rumor has gained currency that our night chief will shortly take unto himself a better half.

Sergeant John C. Wheaton, who has earned a fine record here, has been transferred to Principe as relief to our mainstay, James Armstrong, in keeping the repeaters working. Sergeant Edward Ford, of Bayamo, goes to Santiago, relieving Operator Boyd, who has resigned, to accept a better position. S. E. Clinard, of Manzanillo, will succeed Sergeant Ford at Bayamo as operator.

Mr. Turner, a very intelligent sergeant of the Signal Corps, has been assigned to the chiefship of the Santiago Province, his excellent handling of the affairs in his old district fully warranting the action of his superior in placing him in his new position.

By his steadiness and the exercise of first-class judgment, the veteran Ingram, who works the Santiago end of the Havana wire, has gained the deserved apellage of being one of the A1 men in Cuba.

Mr. Solomon J. Bloodworth, our new manager, is conducting the affairs of the Havana office in a manner that stamps him as being a man of thorough experience.

DENVER, COL., NOTES.

W. A. Dunaway, of the Colorado and Southern Railway, has returned from his holiday vacation.

J. H. Ryan, who spent the holidays in Kansas City, is also back at work.

T. B. McCaffrey, of the Colorado Southern Railway, who had been very ill with an attack of grip, died January 18.

The marriage of Hubert A. Dodge, a former Western Union operator, and Miss Evaline Williams occurred on January 15. The couple went East for an extended trip, and will visit Mr. Dodge's former home in Detroit, Mich. The bride is a daughter of Mr. John Williams, one of the first settlers of Denver, and is a social favorite.

ST. LOUIS, MO., WESTERN UNION.

The Western Union telegraphers are contemplating giving a ball in the near future, probably the 15th of February. A committee of arrangement, consisting of H. V. Crain, president; M. M. O'Neill, secretary; William H. Dinwiddie, chairman, and Henry Van Dam, treasurer, has been appointed. A good time is assured.

The friends of George J. McGann have petitioned Gov. A. M. Dockery to appoint him as one of the St. Louis police commissioners.

Mr. Deverell and wife passed a part of the holidays at his home at Whitby, Can.

A. Kern and family spent two very pleasant weeks during the holiday season with his parents at Monroe, La.

Ray McConnell, of the Cella Com. Co., who experienced quite a siege of pneumonia, is now convalescing.

Miss Anna Murphy left for Monticello, Ark., January 9.

Hermann Weyerman went to Jefferson City to help out during the session of the Legislature.

W. J. Lloyd, of Chicago, was a recent visitor.

KANSAS CITY, MO., POSTAL.

Mr. G. C. Sperry, formerly manager at El Paso, has been appointed a repeater chief at Kansas City for the Logan leased Chicago-San Francisco wire. Mr. G. S. Palmer performs the same duties for the New York-San Francisco and Chicago-San Francisco duplexes.

Mr. Wood has returned to Sante Fe, N. M. and Miss Campbell to Cerrillos.

SAN FRANCISCO, CAL., WESTERN UNION

Mrs. Rose G. Brown, of San Francisco, has been appointed manager at Carson City, Neb.

Miss Etta Simmons, of Marysville, has been appointed manager at Santa Cruz, Cal., vice Miss Laura Coates, retired from the business.

Miss Jennie W. Bacon, of San Francisco, is relieving Miss Cluett at Visalia.

Will Williamson, of East Oakland, has gone to Hotel Arlington, Santa Barbara, as operator for the season.

Arrivals: N. M. Hanson, D. C. De Lany, O. R. Dogge, J. A. Rissell and C. H. Shively, from Chicago.

The heavy increase in business has necessitated the addition of two Morse duplexes to Chicago, thus making three to Chicago, one to New York, and one Wheatstone to Chicago. The operating room is also being enlarged to make room for additional wires.

PHILADELPHIA, PA., POSTAL.

Of the officers of the Electrical Aid Society lately elected, the Postal Company furnished its quota. Mr. James H. Wilson, the vice-president, is manager of an important branch office; Mr. H. W. Hetzel, the treasurer, is assistant to Cashier Geo. G. Glenn; Mr. Thomas J. Murphy, a new member of the executive committee, is an extra man on the night force.

The Messrs. Albert Weiss, J. McGarvey and Fred Skerrett have been transferred to regular night duty.

Miss M. V. Hagan, of the City Department, Mr. M. Auerbach, of the North Front street office, and Miss Greiner, of the Vine street office, were each compelled to remain at home a short time on account of the ravages of the common enemy—grip.

Chief Operator C. A. Stimpson, accompanied by Mr. Joseph Eder, took a trip to Reading, Pa., and virtually modernized the old switchboard at that place, re-arranging the wiring and adding spring-jacks and loop cords. One of the primary causes

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for this work was to accommodate the additional wires running up into the coal regions.

Miss Bessie Knight is again at work in a broker's office.

Miss Jennie Melville spent a day in charge of the Test office at Conshohocken.

A storm door recently erected at the employees' entrance is one of the greatest comfort-assuring conveniences we enjoy.

POTTSVILLE, PA., WESTERN UNION.

Miss Mary Tucker spent a few days lately with friends at Reading and Philadelphia.

Mr. E. H. Miller, chief operator at this place, has the sympathies of a large number of friends in the loss of his wife, who died very suddenly on January 13, expiring within fifteen minutes after being stricken.

Joseph Witman and Mr. Beyerle, of this office, and members of the famous Third Brigade Band, N. G. P., accompanied that organization to Harrisburg, where they gave a successful concert on January 24.

Mr. M. C. Croll, manager of the Pennsylvania and Reading telegraph at Williamsport, who worked at this place over a quarter of a century ago, was a recent caller on some of his old-time friends here.

Eugene Miller, train dispatcher at Tamaqua, spent a few pleasant hours with us recently.

LIMA, O., NOTES.

The Buckeye force at this point remains about the same with the exception of the transfer of Edward Sullivan from Findlay, O., to Lima, and G. D. Beaumont from Lima to Mermill, O.

The big oil well struck in Texas lately made things pretty lively here for a time. The market took a tumble and there was a scramble to sell, consequently the different departments were worked to their utmost capacity.

We have escaped the grip so far, the only exceptions being John McNeff and W. H. Crimmel, and they were only absent a couple of days.

Edward Ogelvie is still manager at the Western Union, assisted by Operators E. Hill, G. S. Rohn and E. C. Rohn.

I. W. Brown is manager of the Postal, assisted by Bert Neff.

NEW YORK, POSTAL.

The painting and decorating of the main office has been completed and the office now presents a fine and cheerful appearance which the force duly appreciates.

Business for January held up remarkably well in comparison with a year ago, and the "extras" have been doing fairly well for what is known as the dull season.

Mr. H. C. Bunting, formerly of the Postal, when located at 187 Broadway, and lately of The Associated Press, has been appointed night traffic chief of the Eastern and Northern divisions in place of T. G. Williams, resigned.

Mr. E. W. Clowes, who recently arrived from Elkhart, Ind., has been assigned to duty in the Western and Southern divisions.

Mr. J. A. Ross, who has been South for the last two months, has resumed his duties on the West and South.

The Erie Telephone Company having removed their general offices from the city, Mr. Orvan H. Davidson has returned to duty in this office.

Mr. F. C. Yule is back again from a four weeks' vacation spent in the West.

Mr. Harold Rhodes, of the Western Division, is once more at his post after an absence of two weeks, caused by a severe attack of grip.

Mr. Geo. F. Randolph, of the leased wire board, is laid up with a severe attack of rheumatism.

Mr. G. O. Heath, recently of the Postal staff at Columbus, O., has been assigned to the Cleveland duplex.

Mr. E. A. Goshert, lately of the Washington, D. C., force, has been assigned to the New York-Buffalo bonus wire.

Messrs. Thos. F. Kehoe and Jas. F. Ahearn, respectively of the Postal "World" and "Journal" staffs, and Mr. W. Stirling, of the main office, handled the specials for the newspapers at Paterson, N. J., during the recent sensational murder trial at that place. They averaged 40,000 words daily for the afternoon papers alone, handling it in fine shape and to the entire satisfaction of the papers and their employers. Manager B. J. McCabe and his assistant, Mr. Lewis, of the Paterson Postal office, deserve great praise for their share of the work and management of the affair. Two hundred and fifty thousand words were handled during the trial.

The Postal branch offices at 147 West Forty-second street and 1586 Broadway, are under the management of Mr. Eugene Tully, who has been a branch office manager for the Postal for the last ten years and who is highly esteemed by the officers of the company. The force at 147 West Forty-second street is as follows: F. Geigle, day operator; H. Lewers, night operator; E. Kauper, all-night operator. Clerks: J. Geigle, C. Cuerbo and F. Archer. At 1586 Broadway H. Reinhardt is the day operator; E. Collins, night operator; W. Shady, clerk. Manager Tully is fortunate in having such an efficient staff under him.

NEW YORK, WESTERN UNION.

A handsomely illustrated card bearing New Year's greetings to all the employees at "195" was received recently from the operators at Pahna, Prague, Bohemia.

Mr. E. Payson Porter, who on account of the bad condition of his eyes, has been confined to a dark room for some weeks, resumed duty January 12.

Miss Belle M. Davis, of the city line department, is at her home seriously ill. Miss "Jo" Mulaney, formerly of "195," is also confined to her home on account of sickness.

Mr. Edward S. Rowan, clerk to General Traffic Chief Nourse, resigned January 11 to accept a position as stenographer with a local private company.

Edgar Dennis, late a boy in the Race Department, was promoted January 21 to be an operator and assigned to the Produce Exchange.

Joseph O'Donnell, for the past two years clerk

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and assistant receiver at the Cotton Exchange branch, died at his home in Brooklyn, on January 15. On the day of his funeral his office associates sent a handsome floral cross.

Miss Florence M. Card, of the Erie division, who resigned on account of ill-health, writes from Sing Sing, N. Y., that she is slowly improving.

Mr. J. M. Casey, of this office, left for Denver, Colo., January 23 for the benefit of his health.

Mr. Harry B. Rathbone has recovered from his late illness. He was recently appointed on the night editorial staff of the New York Journal.

Mr. Charles T. Thompson, wire chief of the American Telegraph and Telephone Company, Boston, Mass., was a recent visitor at "195." Mr. Thompson is in New York to look over switchboards for the use of his company in Boston and elsewhere.

Mr. Thomas M. Brennan, assistant manager, who has been ill with grip, returned to duty January 25.

Mr. J. F. Paddock is receiving congratulations on the birth of a son.

Mr. Vincent J. Burns has a daughter, born January 19.

Miss Ella Wilson and Miss Lizzie Gilkey attended a performance recently to see "In the Palace of the King," and were very much pleased at Miss Viola Allen's interpretation of it.

Mr. T. A. Brooks, who has been time-keeper at "195" for the last twenty years, and Mr. W. J. Quinn, the secretary of the aid society, and payroll clerk for fifteen years, have probably a more extended acquaintance among telegraphers than any other men in the business and could relate many reminiscences.

If the inventor of the typewriter sending machine were to visit "195" he would notice many of the men sending with their thumbs and hands badly cramped. Through pity he would endeavor to hasten the completion of a machine which will be a godsend to the telegrapher—sender as well as receiver.

Mr. John King has the sympathy of his friends in the death of his young son, which occurred January 11.

Mr. Wm. H. Gunning, formerly of this office, is now at Palm Beach, Fla., where he holds the position of chief mail clerk for the Hotel Royal Poinciana.

Mr. John Fannon, formerly employed by Armour & Co., at their Duane street office, has gone to Los Angeles, Cal., for the benefit of his health.

Mr. Frank Fanning, formerly of "195," and latterly of 985 Eighth avenue, office, died January 5, of Bright's disease.

134 PEARL STREET BRANCH.—This is one of the oldest branch offices in Superintendent Redding's district, and presents a very busy appearance. The bulk of the immense volume of the sugar and coffee business is handled at this point. Mr. J. P. Kirchner is the manager, having served as such for the past fifteen years. He is a man of ability, and by long experience is well qualified to meet all emergencies. His staff is made up as follows: Messrs. J. J. Gaitlan, James Crowley and H. Weir, operators; John Wiegel, bookkeeper; Robert Knapp and J. J. Sunly, receivers, and Roland Elmendorf, clerk. The American District Telegraph Company is also located here. T. S. Mahoney is manager, assisted by Messrs. James McNulty and Philip McVey and a force of thirty boys.

Typewriters expressed or sent to our shop, repaired or rebuilt at lowest prices for operators. Cylinders, ribbons, at reduced prices; machines bought, sold and rented. Wall & Butler, 57 Dey street, New York. (Adv.)

Any fifty-cent piece of music mailed eighteen cents. Rusticana, Anchored, Calvary, Palms, Flower Song, ten cents each. Anything at less than half publisher's price. I will sell you a good piano for one dollar per week, from $35 up. B. L. Brannan, 195 Broadway, New York. (Adv.)

Dr. Slaby, who has recently been making experiments under the patronage, and with the suggestions, of the German Emperor, has reached the conclusion that what we now call "wireless" telegraphy would better be named "spark" telegraphy. He seems to be right, inasmuch as no wireless system of telegraphy has yet been invented—that is, a wire of some kind or other is used in all the systems that have been described to date. At the same time, despite their differences in other regards, all of such systems use the electric spark to set up electrical oscillations, so that the term seems one that excellently fits its subject.—Electrical Review.

Mr. G. W. Ellis, formerly with the Anglo-American Cable Company, 8 Broad street, has recently been appointed to fill a vacancy in the telegraph department of the Standard Oil Company, 26 Broadway, New York, which was created by the departure of Mr. W. C. Stewart to accept a position with a manufacturing firm at Sharon, Pa. The telegraphic personnel of this office is as follows: H. W. P. Swisher, manager; H. C. Wildner and Sidney H. Flagler, assistant managers; W. J. Cogan, G. W. Ellis and Charles V. Drake, operators.

Thirty-eight new boxes were added to the Chicago fire-alarm telegraph system during 1900.

Readers of the TELEGRAPH AGE are referred to the advertisement of the Montauk Cable Company on page two of the front cover. (Adv.)

The Modern Service of Commercial and Railway Telegraphy (8th Edition, revised and enlarged), by J. P. Abernethy. The theory and practice, including railway station and express service. Arranged in questions and answers. 425 pages, 40 illustrations. Price $2.00, expressage prepaid. Address John B. Taltavall, The Telegraph Age, 253 Broadway New York.

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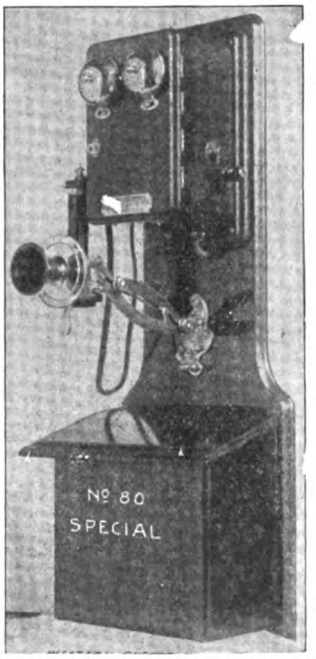
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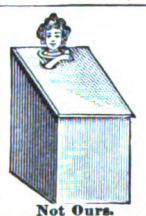
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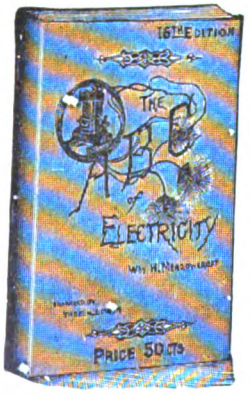
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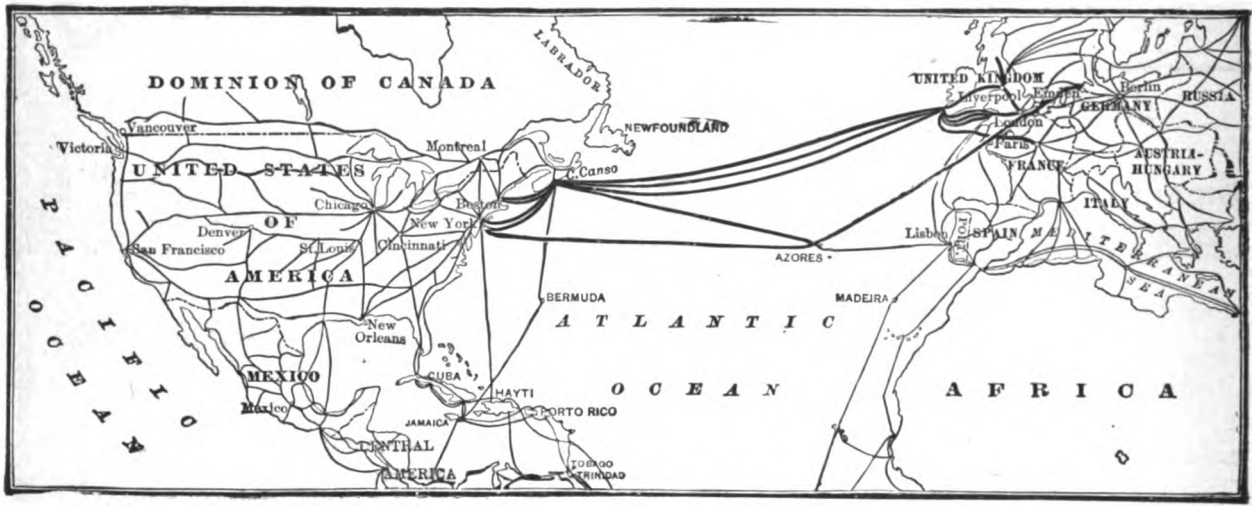
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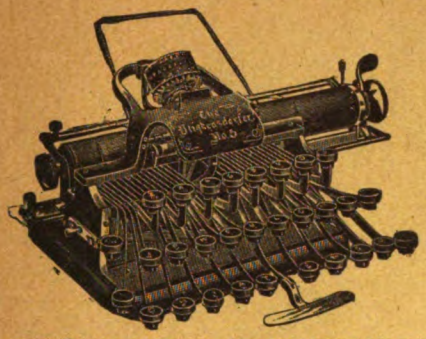
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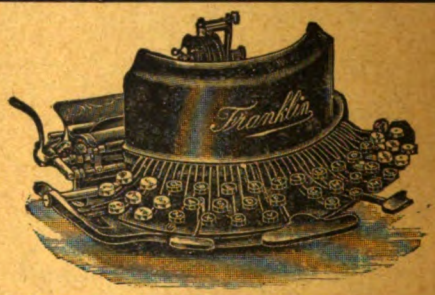
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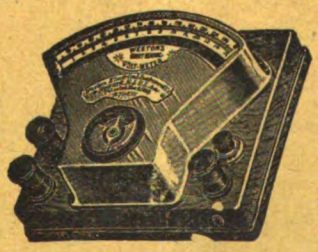
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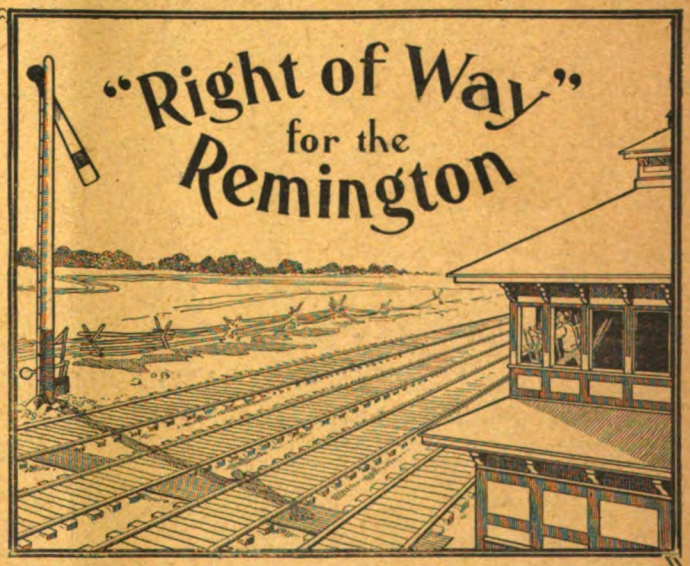
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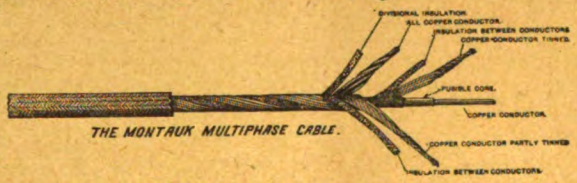
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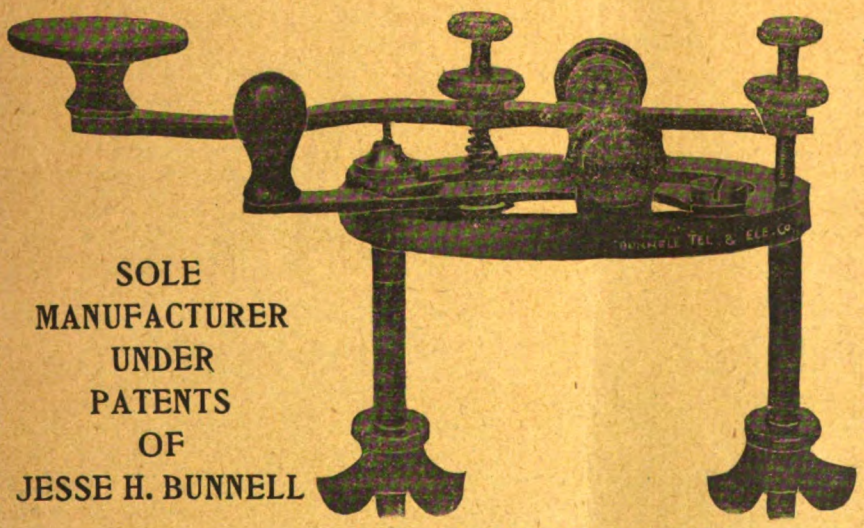


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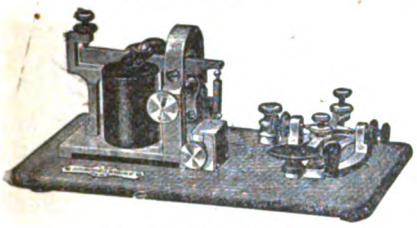
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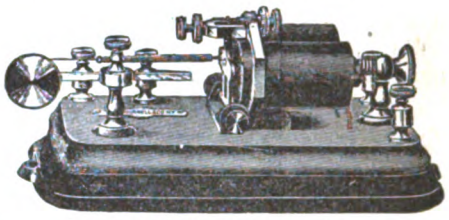
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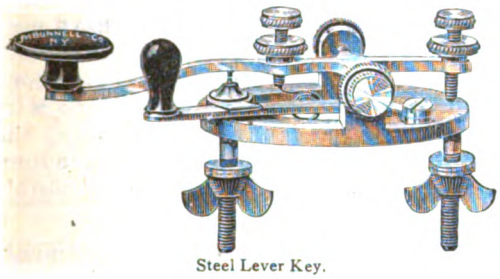
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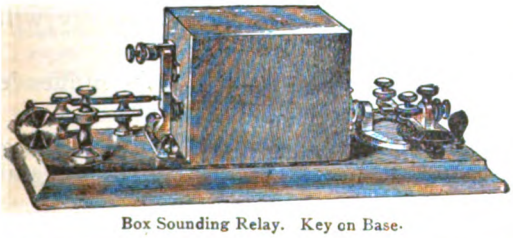
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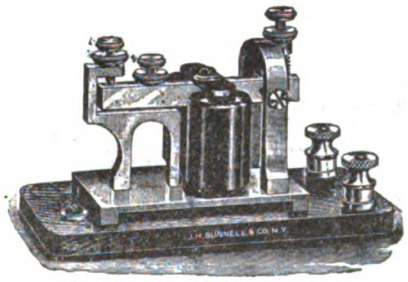
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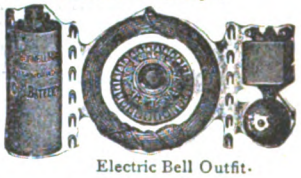
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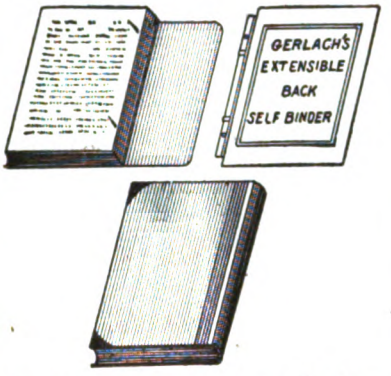
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THE TELEGRAPH AGE.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

The Galvanometer—Continued.

In a preceding chapter of this series of articles it was stated that the process of handling the galvanometer outfit is very much like that followed when balancing a differential or polar duplex. That is to say, the aim of the operator is to make the ohmic value of the circuit B—G equal to A—L, arms X—A and X—B being already of equal value in each device; and that the balance or measurement in either case is completed only when the current ceases to exert a magnetic influence on the armature of the relay or the needle of the galvanometer, respectively.

From this it will be seen that in order to ascertain the ohmic resistance of a wire or other conductor, it is simply necessary to attach the same (which, of course, must be grounded at the distance end) to arm A of the wheatstone bridge, center the needle, placing it so that it points to zero, and proceed to take a balance in the usual manner by altering the resistance in the wheatstone rheostat until the needle is not affected by the current when key K is temporarily depressed. When this has been accomplished, count the unplugged resistance in the box, and the figure, or figures, obtained will represent the ohmic resistance of the wire or conductor measured. Could anything be more simple? The main thing, after all, is to thoroughly understand the nature of each problem and the conditions existing in each circuit about to be measured.

If, for example, it was desired to ascertain the insulation of a long telegraph circuit, the reader would gain very little information from the mere statement that the connections and process is identical with that described in the conductivity example just mentioned. He must first understand that while he is about to find the value of an unknown resistance, it is not alone the resistance of the wire itself that he must contend with, but that, also, of the unavoidable side paths, or escapes, via the poles along the line. Hence he must open the wire at the distant end in order that the current may find no outlet to the ground except via the illegitimate or insulation defects at the poles. Then, again, he should know beforehand that insulation resistance, especially on good wires, is very great, the figures sometimes running into millions of ohms. As the rheostat does not contain anything near that many

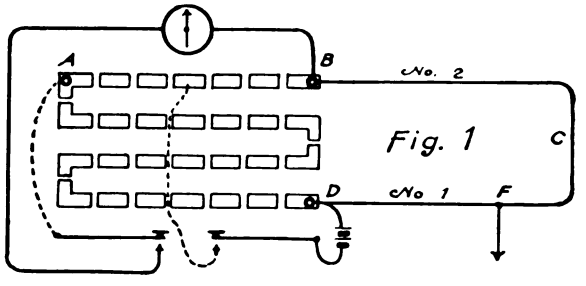


Fig. 1

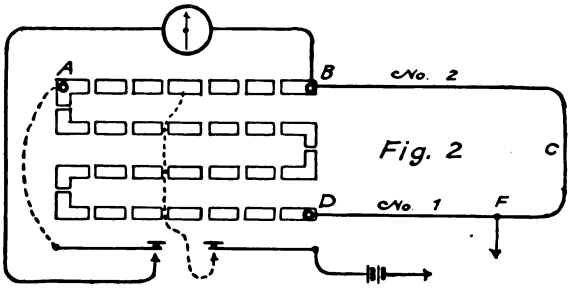


Fig. 2

ohms of resistance, it is necessary to make a change in the value of the arms X—A and X—B in the bridge.

For a measurement of this kind the plan would be to give arm X—A a much greater value than that in arm X—B. Thus, if the value of X—A be, say, 10,000, and that of X—B 100, after a balance in the usual way has been taken, the true resistance is obtained by multiplying the value of the unplugged resistance in the rheostat by 100, because, with the bridge arranged in that proportion, 100 times as much current traverses X—B and the rheostat as passes through X—A and the open wire. Finally, as the result shown represents the joint resistance of the entire external circuit, the insulation per mile, or per pole, as may be desired, is ascertained by dividing the total value of the insula-

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tion resistance thus obtained by the number of poles or miles, respectively, in the circuit measured.

On the other hand, when the resistance of a short piece of wire to be measured is exceedingly low, the value of the arms in the bridge must be reversed —that is to say, place the greater proportion of the resistance in the arm X—B instead of X—A, in order to shunt the most of the current the other way, and thus protect the needle from too great a magnetic influence. In this case the true value of the conductor measured will be but one hundredth of the unplugged resistance found in the rheostat.

Let us now measure a defective wire, just to show the manner in which we would go about it. Assume that wire No. 1 was grounded at a certain point, the distance to which is unknown. If the ground was solid—that is, possessed no resistance in itself—of course the wire should be connected at B and balanced by the rheostat in the usual way, but when the ground is insecure, the measurement should be made by what is called the Varley loop test. This requires a second wire, which should be one approximately identical in size and length with the defective conductor, and perfectly clear. In large offices there are usually a number of such wires strung on the same poles.

Loop the two conductors together at the first station beyond the fault, and connect them, respectively, to the wheatstone bridge, as shown in Fig. 1, the good wire to arm B, and the other to the end of resistance coils R at D. One pole of an intermediate battery should also be connected to binding post D, which takes both grounds at F.

When a balance has been taken, the resistance R will show the total resistance of the two combined wires. Assume that it was found to be fifty ohms. Make a note of the amount and then proceed as follows: Remove the battery from D, and ground one end of it, as shown in Fig. 2, but do not disturb the other connections. Now balance as before. The result will show how much resistance it was necessary to add to wire No. 1 between D and F in order to balance the good conductor, No. 2, with the remainder of No. 1, between C and F, added to it.

Assume that the box contains ten ohms. This means that half of that amount has been added to the good wire, and the same amount subtracted from the wire we are measuring. Therefore, to find the true resistance of wire No. 1 between D and F, subtract ten from fifty (the total resistance of the loop as first measured), and divide the remainded by two, thus:

$$F = \frac{50 - 10}{2} = 20 \text{ ohms.}$$

The formula for the Varley loop test is:

$$\text{Fault} = \frac{\text{Res. Loop} - \text{Res. in rheostat}}{2}.$$

To find the distance to the fault divide the result by the known resistance per mile, or foot, of the conductor measured.

(*To be continued.*)

No up-to-date telegrapher can afford to be without TELEGRAPH AGE. Send for a sample copy.

Business Notices.

The Electric Storage Battery Company, of Philadelphia, manufacturers of the "Chloride Accumulator," announce that owing to the very large increase in their business in the middle Western states, they have established a branch office at St. Louis, Mo. This office has been placed in charge of Mr. R. H. Klauder, formerly of the Philadelphia staff, and will be located in the Wainwright building. Mr. Klauder's extensive experience, gained during his connection with the Electric Storage Battery Co., has made him thoroughly familiar with up to date storage battery practice.

The Standard Underground Cable Co., of Pittsburg, Pa., announce that they have recently completed and put in operation their new Eastern factories at Perth Amboy, N. J. Located at tidewater, the facilities of this company for ocean deliveries will be of course measurably increased. In this connection there have been some departmental changes. Mr. George L. Wiley will continue as manager of the Eastern sales department at 56 Liberty street, New York, while Mr. Charles T. Marsh, with offices at the same address, has become manager of a new department known as the Eastern and Northeastern sales department. About March 1st still another department will be established at Boston, Mass., of which Mr. Atlee B. Saurman, formerly assistant manager of the Eastern sales department, will have charge.

Miscellaneous Items.

Mr. W. S. Cunningham, manager of the Postal office at Greenwood, Miss., writes: "TELEGRAPH AGE continues to improve, and I do not see how any man that is interested in his profession can get along without it."

Mr. Clyde H. Newman, manager of the Postal office at Rochester, N. Y., has been made manager of the office at Buffalo, N. Y., the vacancy at Rochester being filled by Mr. R. J. Little, transferred from the management of the Scranton (Pa.) office.

Mr. J. B. Stewart, the former superintendent of telegraphs and signals of the West Shore railroad, at Weehawken, N. J., is doing effective service in introducing the block signal system along the line of the old Fall Brook and Beech Creek railroads, now known as the Pennsylvania Division of the New York Central.

Mr. C. H. Wilson, a well-known former telegrapher, and until lately general manager of the Southern Bell Telephone and Telegraph Company, at New York, resigned that position to accept the appointment of general superintendent of the American Telephone and Telegraph Company, with headquarters in New York city. Mr. W. T. Gentry, who has been superintendent of the Southern Company at Atlanta, succeeds Mr. Wilson as general manager, continuing to make the latter place his headquarters.

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Obituary.

Guy Franklin Clark, a well-known Associated Press operator, died at his home in South Charleston, Ohio, on January 20, aged 27 years.

Zénobe Théophile Gramme, the well-known inventor and electrician, a Belgian by birth, died at Bois Colembes, near Paris, France, on January 20, in the 75th year of his age.

Luther C. Dodge, who, when a young man, was a telegraph operator at Burlington, Vt., on the old line between Troy and Montreal, died at his home in San Francisco, Cal., where latterly he was engaged in the lumber and mining business, February 4, aged 79 years. He was thrice elected mayor of Burlington.

Albert W. Guilbert, a telegrapher, died at Racine, Wis., January 23, in the 55th year of his age. When the Western Union Telegraph was first opened between Racine and Rock Island, Mr. Guilbert had charge of all the telegraph stations along the line of that route, afterwards becoming superintendent of the division.

John H. Farrell, editor and proprietor of the Albany (N. Y.) Times-Union, died in that city on February 2, in the 62d year of his age. He had had a long and varied newspaper career. He was senate reporter for The Associated Press for twenty years, was one of the founders of the United Press, and for many years its vice-president. In 1895 he was elected president of the New York State Press Association.

Jesse M. Sarvis, one of the oldest newspaper correspondents in Washington, D. C., died in that city February 8. He was born in Juniata County, Pa., about sixty years ago. He was one of the first telegraph operators in the employ of the Pennsylvania Railroad Company, and when a youth, it is said, he and Andrew Carnegie worked together in the same office in Altoona. From about 1865 to 1870 Mr. Sarvis was employed by the Western Union Telegraph Company in Washington, but since then has been connected with various New York financial journals.

Mrs. Stella Jewell Tinker, the wife of Charles A. Tinker, general superintendent of the Western Union Telegraph Company, New York, died at her home in Brooklyn, on January 30. She was a woman highly esteemed, of a lovely Christian character, given to quiet and unostentatious charities, and will be sincerely mourned by a wide circle of friends. The funeral services, which were largely attended, and notably so by representative telegraphic officials, were held on February 2, and were conducted by the Rev. Dr. L. Mason Clark, of whose church, the First Presbyterian, she was a member, assisted by the Rev. Dr. Robert MacDonald, of the Washington Avenue Baptist Church.

Ira De Witt, of Pittsburg, Pa., a former New York Western Union operator, died in Parkersburg, Pa., on January 28, aged 57 years. He was born at Barryville, N. Y., in 1843, and found employment in New York as a telegrapher when 16 years of age. He served through the Civil War, after which he returned to New York and became connected with the Western Union Telegraph Company. In 1896 he left New York, going to Pittsburg, Pa., where he engaged in the oil business, in which he became well known. He is survived by a wife and three daughters.

John J. Eagan, formerly a United States military operator, died at Dallas, Tex., February 4, aged 58 years. When the Civil War broke out Mr. Eagan enlisted as an operator, first serving under Gen. John C. Fremont. He afterwards took an active part in the service throughout the continuance of the war, his field of operations being principally in the Southwest. He went to Texas in 1866. He leaves a wife and three married daughters.

Personal Mention.

Mr. Thomas A. Edison will shortly leave his home at Orange, N. J., for a month's vacation in Florida.

Mr. F. W. Jones, electrical engineer of the Postal Telegraph-Cable Company, New York, accompanied by Mr. Minor M. Davis, assistant electrical engineer, are in Baltimore, Md., whither they went on official business February 14.

Resignations and Appointments.

Mr. Charles A. Blair, for eighteen years manager of the Postal Telegraph-Cable office at Richmond, Ind., has resigned to accept a position as city ticket agent at that point for the Cincinnati, Richmond and Muncie Railroad Company, a new corporation.

Mr. Smith H. Riker has resigned his position of wire chief with the Western Union at Syracuse, N. Y., where he has been with but slight intermission since 1883, to accept an appointment with the American Telegraph and Telephone Company, at Troy, N. Y.

Recent New York Visitors.

Mr. Alexander Craw, a well-known telegrapher, and now chief claim agent of the Pennsylvania Division of the New York Central and Hudson River Railroad, at Corning, N. Y.

Recent Telegraph Patents.

A ship's telegraph has been patented by Leon S. Thompson, of Washington, D. C.

A printing telegraph instrument has been patented by L. M. Cassella, of London, England.

A column printing telegraphic instrument has been patented by Frederick H. W. Higgins, of London, England.

Mr. W. R. Brixey, the well-known cable manufacturer, of Seymour, Conn., and New York city, has received a Government contract for 600 miles of submarine cable for use in the Philippines.

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Reminiscence of the Prince of Wales' Visit.

Mr. Robert Stewart, of Greenville, N. J., former superintendent of the telegraph system of the New Jersey Central Railroad, tells of the time he met the former Prince of Wales, now King Edward VII. It was in South Amboy in 1860. The Prince and his suite had just made the trip from Camden to South Amboy over the Camden and South Amboy Railroad system. Telegraphy was then comparatively in its infancy. The road had just adopted the telegraph signal system, and Mr. Stewart was its first operator. He had control of about 300 men, and had charge of the reception of the Prince at the South Amboy terminal.

The Prince was returning from a visit to the President at Washington. At that time the Amboy route was the only route between New York and Philadelphia. The Prince and his party traveled from Camden to South Amboy in a special train, made up of an engine and three cars. The engine was an old "wood burner," and the fastest on the road. In those days the cars were not so elaborately arranged and furnished as to-day, and a long ride in one of them was not always a joy. Seats were arranged along the side, similar to the arrangements of trolley car seats. The trucks were not then equipped with patent springs, and the railroad passenger was subjected to considerable jarring.

From Camden to South Amboy is 63 miles. This fast train made the trip in exactly three hours, which was then record breaking time. When the Prince and his party alighted at the Amboy station they were met by Mr. Stewart and a number of officials, who escorted them to the steamer Alida, which was waiting to convey the party to New York. On board of the Alida was a party of New York officials.

Mr. Stewart says that he remembers the incident as though it happened but yesterday. He says:

"The Prince seemed to be extremely modest and of a happy disposition. He was certainly most democratic in his manner. He shook hands with many of the people about him. All along the road the people had come out to greet him, and he expressed himself as being delighted at the manner in which he was received. At that time one of the Bonapartes, a brother of Emperor Napoleon II., was residing at Bordentown, N. J. The Prince referred to the Bonapartes and said that it pleased him to have been in the State that sheltered one of the family. I never saw the Prince after he boarded the Alida, but my recollections of him have always been most pleasant. He was then a boy not more than nineteen years old, but he impressed me as being exceedingly intelligent.

"The Camden and Amboy Road then owned the engine John Bull, which is now in the Smithsonian Institution. Great improvements have been made in railroads since that time. The Camden Road, although operating but sixty-three miles of track, was then a railroad of considerable importance. It has since been absorbed by the Pennsylvania system. In those days accidents were numerous. Engines and cars often broke down and caused long delays. About every ten or fifteen miles stops would have to be made for wood and water. Piles of wood for fuel were placed along the entire line. It can readily be imagined that firemen were pretty busy men."

In 1875, when the Grand Duke Alexis, of Russia, visited America, Mr. Stewart was in charge of the special train that conveyed the Duke and his party over the Pennsylvania Railroad from Jersey City to Philadelphia. He says that the Duke was an extremely affable man, and that he tipped all railroad employees liberally. "The Duke," said Mr. Stewart, "appeared to be very fond of wine."

Mr. Stewart is one of the pioneers in telegraphy in this country. He has been connected with various railroads for more than forty years. He was telegraph superintendent of the New Jersey Central Railway for fourteen years. He supervised the construction of the block system adopted some time ago by that company. He is now sixty-two years old, and is still active and vigorous.

M. D. Shaw Fund.—In addition to the money already subscribed through Telegraph Age, and previously acknowledged, to the fund now being raised by the Order of Railroad Telegraphers, though Mr. H. B. Perham, its secretary, for the purpose of erecting a monument to the memory of the late M. D. Shaw, a further sum of $28 has been given by some of Mr. Shaw's old friends, mainly at the New York Herald office, and sent to us by Mr. J. C. Watts. The subscriptions thus far made through this journal amount to $66. There is urgent need to increase this total in order to speedily carry out the beneficent object in view, and it is hoped that those who are intending to contribute will lose no time in doing so.

New Wireless Telegraphy.

A new system of signalling at sea, by means of which, it is expected, messages can be sent a distance of 500 miles, is to be put into operation by the United States Weather Bureau at Capes Hatteras and Henry. Wireless messages have been sent to Washington, says Willis S. Moore, Chief of the Bureau, from Cobb's Island, seventy miles down the Potomac, and the chief further asserts that the system will be a success on the extended plan. The speed is the same as that of light. The system is said to be distinct from that of Marconi.

Mr. E. S. Derr, formerly manager of the Western Union Telegraph Company, at Allentown, Pa., is now connected with the New York Sun as operator both of the telegraph instrument and monotype. The latter is the latest invention in typesetting machines. During the trial of the Bosschieter murder case at Paterson, N. J., Mr. Derr performed the extraordinary feat of taking the telegraphic report direct from the instument and, without first making a copy, setting up the matter on the monotype. The Sun's complete report of the famous trial was all put in type in this way.

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The Telegraph in the Nineteenth Century.

BY WM. MAVER, JR.

(*Concluded from page 58.*)

After the public mind had accepted electric telegraphy as a practical success, and overland telegraphy had become firmly established, it was not long before the feasibility of submarine telegraphy was mooted, and in 1850 the first submarine electric cable of any great length was laid between Dover and Calais, a distance of about twenty-four miles. This was followed by the laying of cables of gradually increasing length, until one of seventy-four miles was successfully laid between England and Belgium. The question of connecting Europe and America by cable now became a subject of serious consideration. "Such a scheme," said a writer of that time (1853-54), "is regarded now pretty nearly as that for the electrical connection of the British Islands with each other and with the European continent was regarded some years ago. The sanguine consider the project practicable, and its speedy realization probable. The more phlegmatic notice it only with ridicule. Men of science generally admit the possibility of the enterprise, while men of finance more than doubt the possibility of a remunerative result."

After three discouraging attempts, a cable was, in 1858, laid across the Atlantic, but it was so short lived that those who had previously questioned the feasibility of the enterprise flatly denied that it ever had been successfully operated, and would hardly be convinced even by the affidavits of all concerned in laying and operating the cable.

It was due to the untiring efforts of Cyrus W. Field, of New York, that these various attempts to span the Atlantic with an electric telegraph had been undertaken. Nowise daunted by the repeated failures, he continued his advocacy of the scheme, but the Civil War in this country compelled a temporary abandonment of the project. In 1865 a fourth cable was made, but it, too, was broken and lost while in process of laying, by a sudden lurch of the vessel carrying it, the Great Eastern, and it could not be recovered. At each failure, however, new experience was gained, which led to the necessary improvements in making and laying the cable, with the result that in 1866 the work was crowned with success, and an electric telegraph across the Atlantic was an accomplished fact.

At the beginning of this century it was deemed wonderful that the happenings of the day before in the capital of Great Britain could be read at the breakfast table the next morning, thirty miles out of London, the means for this *rapid* dissemination of intelligence being quick relays of horses and stage coaches. By the completion of the Atlantic cable the same thing was made easily possible between points a distance of 6,000 miles apart, and to-day, by the extension of the electric telegraph over every land and under every sea, no part of the civilized world is in point of time one hour removed from any other part. Lest this should be thought an extravagant statement, it may be noted on the authority of Mr. G. G. Ward, that on one occasion, at least, a *bona fide* business transaction was consummated by means of the electric telegraph between Manchester, England, and Victoria, British Columbia, in one minute and a half.

Between 1850 and 1870, beyond the extension of and improvement in line and cable construction, and in the improvement of apparatus, there was no very marked development in the art of telegraphy. The invention of automatic repeaters in this country, however, in 1848 and 1856, by means of which messages were transferred automatically from the end of one line to the beginning of another, is certainly worthy of passing notice. The Bain chemical system was introduced in 1849 in the United States, and for three years sharply contested the ground with the Morse system, and was seemingly in a fair way to outgrow the latter, when the rival companies were consolidated, after which the Bain system was gradually withdrawn from service. The tendency in this country after 1853 was towards the general employment of the Morse system, and its use in other countries steadily grew. Even the beautiful Wheatstone automatic system, which, beginning with a speed of 60 to 120 words per minute, is now capable of transmitting over 600 words per minute, is a modification, or refinement, of the Morse recording telegraph. In Europe, and especially in France, much use was made of printing telegraph apparatus, the Hughes printer, invented and named after David E. Hughes, of Kentucky, 1855, being much employed. The dial telegraph of Wheatstone, in Great Britain, Breguet's, in France, and Siemens', in Germany, were also in extensive use at this period. The Morse recorder in this country, after some years, gave way almost universally to the now well-known Morse sounder, the latter having been found to be more accurate and speedy than the recorder. Attempts also had been made to increase the existing wire facilities, without changing the methods of operation. As early as 1853 Dr. Gintl, of Austria, had devised a system for sending messages in opposite directions over one wire at the same time. He was followed by Frichen and Siemens-Halske, who invented the now well-known differential duplex method. Stark, of Vienna, invented the first duplex method, a means of transmitting two messages in one direction at one time over one wire. These systems were tried, but were apparently too crude to meet the requirements of successful double transmission. Perhaps the demands for increased facilities at the time did not call for continued efforts to improve them. But whatever the cause, up to 1867 these and other systems "had not found their way to any extent to practical application," and it was said without qualification that such attempts at duplex transmission "must be looked upon as little more than feats of intellectual gymnastics—very beautiful in their way, but quite useless in a practical point of view." These words, written, as they were, by one of the foremost scientific men of that day, were not calculated to encourage efforts in this direction.

Not long after this time, however, J. B. Stearns, of Boston, introduced the duplex telegraph system

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which bears his name. This duplex, in its basic principles akin to the Siemens-Halske differential duplex, was introduced upon the telegraph lines of this country, and, after a short time, in 1872, Stearns added to it the condensor, without which the duplex must have remained an impracticable device over long lines. This system at once doubled the existing capacity of every wire on which it was installed, without any change in the Morse system of transmission and reception of messages—a very important feature. The Stearns duplex was followed, in 1874, by the Edison quadruplex, which practically increased fourfold the capacity of every Morse circuit quadruplexed. Some idea of the great value of the duplex telegraph system may be gained if we consider its value in submarine telegraphy alone. As previously remarked, there was but one Atlantic cable in 1868, while to-day there are twelve. But each of these cables is now duplexed so that there is the equivalent of twenty-four Atlantic cables in operation, twelve actual and twelve "phantom" cables. In addition to this remarkable development of submarine telegraphy, it may be noted that a speed of but three or four words per minute was the maximum obtainable across the first Atlantic cable. By the use of more sensitive apparatus and improved methods, due to Sir William Thomson, Muirhead and others, this speed was soon doubled and trebled, until to-day a speed of about twenty-two words per minute in each direction is attained on these cables, and what is true of the Atlantic cables is relatively true of submarine cable telegraphy everywhere.

Among other developments in electric telegraphy in the last quarter of the century have been the Delany multiplex synchronous system, by which six and eight messages may be sent over one wire at the same time; this system is now in operation in Great Britain; Gray's harmonic telegraph, by which at least five messages could be sent over one wire at once; this system was operated in this country, but was not found so well adapted to the needs of the service here as the quadruplex. In this system tuning forks, accurately attuned, respectively, to different rates of vibration, were caused to send electric pulsations over the wire, which pulsations were responded to by correspondingly attuned forks, arranged as armatures of electromagnets placed in the wire. While a particular transmitting fork vibrated its correspondingly attuned receiving fork vibrated, and would cease to vibrate with it. In this way dots and dashes of the Morse alphabet were transmitted. A very important system was invented in 1882 by Van Rysselberghe, of Brussels, by means of which it is possible to telegraph and *telephone* over the same circuit at once. This system, and modifications of it, are now largely used in this country and elsewhere. An analogous system, the Edison phonoplex, by which messages are transmitted by pulsatory signals, superposed upon the regular Morse system, is also in extensive use in this country. In Great Britain the Wheatstone automatic telegraph is very generally used, especially for press dispatches. The same system is also employed to a considerable extent in the United States. In France, Baudot's printing telegraph system, by which four messages are transmitted at once, is the established multiplex system. In this country the Buckingham printing telegraph system, which is capable of transmitting 100 words per minute on a wire 500 miles in length, and delivers the message printed on an ordinary telegraph blank, is the latest successful development of printing telegraphy in actual operation in commercial work. The almost general use of the typewriter by Morse operators in the large cities of this country is one of the most recent developments of the art, and one which in a measure offsets the acknowledged demand of the public for a printed message. In addition to the foregoing, there is now an extensive use of the electric telegraph in fire alarms, police telegraph, burglar alarms, railroad signalling, and many other more or less similar systems.

The commercial growth of the electric telegraph is well shown by a comparison of the volume of business now handled with that of, say, forty years ago, when perhaps 10,000,000 messages were sent annually. To-day doubtless twenty to thirty fold that number are annually transmitted over the wires of all countries, the bulk of which are sent by the Morse alphabet. Of telegraph wires there were, in 1840, perhaps 100 miles in Europe and none in this country. To-day there are over 1,000,000 miles of wire in this country alone, a large proportion of which is duplexed and quadruplexed, which adds many hundred thousands of miles of "phantom wire" to the service—wire that, for practical purposes, is as available as the actual wire. And it may be said that what is the case as regards the extension of the telegraph here is relatively the case in the rest of the civilized world, so that to-day the earth is virtually gridironed with wires which, to the large majority of those not directly connected with the industry, have been the only tangible and assumedly the most indispensable part of the electric telegraph of which they possessed any knowledge.

It was little wonder, then, that the every-day world stood still in amazement when, four years ago, the announcement was heralded that a system of telegraphy had been invented in which wires were dispensed with, and in which that mysterious something, the ether, was utilized, and by which messages were transmitted across miles of free space. Nor, although the scientific world had been measurably prepared for the announcement of the work of Hertz, Branly and Lodge, was it much less lost in wonderment. Not so much, perhaps, at what Marconi had actually achieved, as at what the achievement portended for science.

The invention of Marconi's wireless telegraph system was no exception to the rule which the inventions of other electric telegraphs had followed. Hertz, in 1884, in pursuing his masterly experiments, had demonstrated the accuracy of Maxwell's prediction that electric waves existed in free space. Hertz used a Righi oscillator to set up electric waves. This consisted of a powerful induction coil, the terminals of the secondary wire being connected with two brass balls, between which a succession of sparks jumped while the coil was in

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operation. For a receiver, Hertz used a ring or quadrangle of copper wire broken at one point. Holding this wire a few feet from the spark gap of the oscillator, the room being darkened, he perceived sparks jumping across the break in the wire, these being due to electric oscillations set up in the wire by the waves radiated from the oscillator. Branly had shown that in the presence of electric waves, metallic filings were affected in such way that their electrical resistance was lowered, and that when the waves ceased, and the filings were shaken, they resumed their former electrical condition. Here was the equivalent of a key in a Morse circuit. Lodge had shown that the electric waves thus set up, acting upon a Branly "coherer," could be caused to operate an electric bell at a distance of many feet.

Taking advantage of these discoveries, and employing the principles of the Righi oscillator, the Branly coherer and his own discovery—the vertical wires at the sending and receiving stations—together with other refinements of apparatus, Marconi has succeeding in transmitting messages a distance, in clear space, of over sixty miles. There were others who, like Preece, had succeeded in telegraphing across rivers and bays to a distance of three to six miles, by electro-magnetic induction, using telephones as receivers; but, remarkable as such results are, they have not awakened a tithe of the interest aroused by the announcement of the results obtained by the Marconi wireless telegraph, doubtless the most notable development of the electric telegraph in the nineteenth century.

Comparing our present knowledge of things scientific with that at the beginning of this century, when, for example, "the man rash enough to have predicted that within fifty years it would be possible to send a message by lightning from London to Vienna would have been considered intellectually deranged," what limits shall we place upon progress in any direction during the coming century?

Is it too much to predict that within the next one hundred years even mental telegraphy—the direct transmission of intelligence from mind to mind—may be an accomplished fact. Seemingly it requires no greater fertility of imagination for us of this day to conceive of such a thing than would have been required of our forerunners of a century ago to have conceived of wireless telegraphy. For if, as we must believe, we live in and are imbedded in the all-pervading ether; if it be assumed that every thought of man sets up a particular vibration in the brain cells, then these vibrations may be transmitted to this ether. Minute such vibrations may be, but, granting this, how exceedingly sensitive, on the other hand, must the brain cells be, which, through the retina, respond to the faint undulations of the ether due to the light from the star trillions and trillions of miles remote. If, then, the brain cells of one are, perchance, attuned to harmony with the brain cells of another, why may not the respective cells vibrate in unsion with each other, the ether being the medium of communication, and thus produce a common thought. At least, the occasions, seemingly too frequent to be classed as coincidences, when similar thoughts in nearby and remote individuals have simultaneously occurred, would lead, and, indeed, in the minds of many have led, to a belief in the possibility of mental telegraphy. But whether this belief may be realized in the near or remote future, and, granting its possibility, we can only say that the means by which such direct communication from mind to mind may be accomplished, *at will*, is beyond our present ken —Electrical Review.

The Employment of Women in the Telegraph Service in Foreign Countries.

The International Telegraph Bureau, of Berne, Switzerland, has issued an interesting report on the employment of women in the telegraph and telephone services of those countries belonging to the International Union, from which the following abstract is made by H. L. Geissel in the Electrical World and Engineer:

The admission of women to the telegraph service dates back about thirty years. The admission of females was chiefly caused by the steady reduction of the rates of the telegrams and the resulting necessity of cheaper labor, but also on account of the fact that women were better fitted for the telephone service than men. Of the countries now belonging to the International Telegraph Union, thirty-two employ to a greater or smaller extent women in the telegraph and telephone service, while only ten administrations so far do not admit women, namely: Bosnia-Herzegovina, Egypt, Greece, Luxemburg, Montenegro, Natal, New Caledonia, Tunis, Turkey and Siam. In Belgium and Spain women are still employed in the telegraph service, but new appointments are not made any longer.

The regulations for the admission of women to the service in the different countries have only the one common point, that the appointees must be citizens of the respective country. Though not specially mentioned, yet it is generally understood that all persons to be admitted must have a clean record and good health. In some countries, such as Germany, Austria-Hungary, Switzerland and others, only persons without any bodily defect are admitted, while in France the authorities demand further that the applicants have a minimum height of 1.50 meters (five feet), the same minimum height being required in England for positions in provincial cities, towns and villages. German and French regulations also demand that the applicants be never fined or punished by any public court, and another additional prime condition to admission in Germany is that the applicants must be absolutely free of debts. One single country, Victoria, demands that the applicants be life-insured. The admissible minimum age varies in the different countries between fourteen and eighteen years, and the maximum age, wherever stipulated, forty-five years; Germany makes in so far an exception as it fixes the maximum age for admission at thirty years. In Germany, Bulgaria, Holland, Roumania, Japan, New South Wales, New Zealand and Victoria the applicants must either be unmarried or childless widows. Other countries, like Russia and England, only demand that the can-

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didates be unmarried or widows, which was also the case in Spain as long as women were admitted. The French regulations do not contain special paragraphs relating to civil life, and married women, girls, widows, as well as divorced women, are admitted to the service. As a rule, however, women have to quit the service after they get married. In Sweden, the employee may remain in the service after marriage, if the husband is also employed in the telegraph service, and the same is the case in Russia, Roumania, Bulgaria and New South Wales. Only in Belgium the female employees are allowed to marry. In Italy, only those female employees who have been appointed superintendents are allowed to stay in the service after marriage, while in England those employees who marry receive on retiring an indemnification in the form of a month's salary for each year of active service. In some countries widows and orphans, as well as daughters, sisters and wives of employees are given preference to any other applicants.

As far as educational questions are concerned, the regulations of almost all countries demand in the first place a perfect knowledge of the mother language, in reading and writing, and a good general knowledge acquired at school. Some countries demand besides a certain geographical knowledge, while in Italy the candidates must speak and write Italian and French; the same is the case in Holland, where, furthermore, a certain elementary knowledge of the German and English languages is required. Swedish regulations, too, prescribe a certain knowledge of French, English and German.

The average working time in the different countries varies between seven and eight hours. In many countries women are employed during day hours, while at night time men take their place.

A Greeley Episode.

A bit of election news was accidentally left out of the Weekly Tribune, when Greeley told the editor that he was a "d—— blockhead." The editor at once resigned, but was sent for a day or two after.

"I understand, sir," said Greeley, "that you have refused to edit the Weekly because I called you a d—— blockhead. Now, don't be foolish, and go back to work. I wouldn't give a button for any man who had been on the Tribune three weeks without being called a d—— blockhead. Sometimes I'm a d—— blockhead myself."

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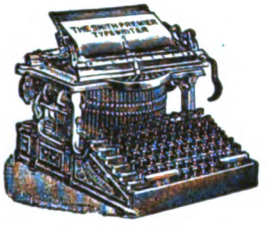
A Manila report states that during the last month the cable ship Burnside was to have begun the laying of 600 miles of cable, connecting Negros, Mindanao and Jolo. Much annoyance has been caused among the Philippine Islands by cutting off cables and telegraph lines.

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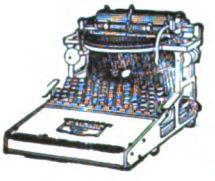


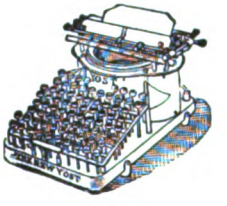
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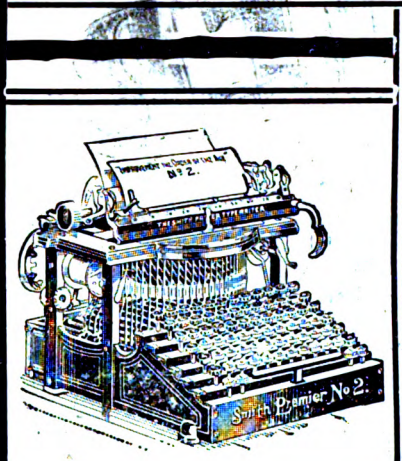
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NEW YORK, February 16, 1901.

Government Telegraph in Canada.

It is stated that the Dominion of Canada is preparing to take under Government control the telegraph systems of that country. Should this plan be consummated, it would be but following the example long since established by England, the mother country, and also carried out in other of her colonies. It has been said that under Governmental direction the cost of telegraphic communication would be lessened and that greater efficiency in the service would be secured. Experience proves to the contrary, for if these conclusions are based on the English experiment such results would not be altogether realized. In densely populated Great Britain, while the cost of sending a message may have become minimized, the service itself shows that it is far from measuring up to the needs of its patrons. The English newspapers have been severe sufferers at the hands of their Government telegraph in the delay and lax methods employed in the transmission of press matter, and all commercial business has felt the urgent need of greater efficiency in telegraph management. It is a condition that we here in the United States would regard as intolerable. Why Canada, especially in view of its Republican proclivities and methods of doing business, more akin to those of this country, should seek to emulate an example that has proved to be exceptionally bad, it is difficult to understand. As a rule, private enterprise is progressive and alert, fully alive to the need of meeting every demand and emergency, while Governmental operation too frequently means comparative inefficiency because too slow.

Should the Canadian Government, however, acquire the telegraphs of that country, as well as the telephone systems, as is also stated, such an extension of Government ownership would become an interesting object lesson to those who dwell on this side of the international boundary line.

A Mental Anguish Bill.

Down in South Carolina the Legislature is wrestling with a "mental anguish bill," directed against telegraph companies. The bill introduced in the present Legislature, and which is likely to become a law, provides: "That from and after the passage of this act, all telegraph companies doing business in this State shall be liable in damages for mental anguish or suffering, even in the absence of bodily injury, for negligence in receiving, transmitting or delivering messages. That nothing contained in this act shall abridge the rights or remedies now provided by law against telegraph companies, and the rights and remedies provided for by this act shall be in addition to those now existing. That in all actions under this act the jury may award such damages as they conclude resulted from negligence of said telegraph companies."

Of course, it is understood that the telegraph companies are all giant monopolies, and should be sued on the same general principle that you should sue a railroad company.

But why should this thing be aimed exclusively at telegraph companies? Why not include in it other things? Why not have a bill that would apply to milliners? Imagine the mental anguish a man suffers, living in dread that a milliner will exhibit a hat—an Easter bonnet say—that will cause his wife to want to purchase it, and she does so, and the bill is liable to be rendered at an inopportune moment? Should there not be some kind of damages for such mental anguish as that? It strikes us as being decidedly proper for a bill of that kind, and a memorial should at once be sent to our Legislature, indorsed by the Business Men's Association, looking to the relief of this kind. Mental anguish is something that should be anticipated and averted, if possible.

And there should be a mental anguish law against young ladies receiving rings and presents from young gentlemen, unless they intend to reciprocate their love. Imagine the mental anguish of a young man, alone in the world, who blows in his last sou for a beautiful present for his darling —and does not know whether it will be returned a few months later. True, young ladies do not have bank accounts, always, like the greedy and grasping monopolies—but the judgment should be made possible, and not only the mental anguish but the flirting would cease.

The mental anguish act should apply to a saloon keeper as well. Think of the mental anguish of the fellow who blows in his last dime late at night, and cannot sleep, wondering whether or not he can get a morning bracer. But it were useless to enumerate. All through the affairs of human life there is a lot of mental anguish which the law does not undertake to compensate. And just why a telegraph company should be held up as a fitting subject to swipe for damages is more than we can understand. But as the mental anguish crusade is on—let it continue, and finally in its fullness and its philosophy apply to Mrs. Carrie Nation.—Danville, Va., Bee.

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CABLE MANUFACTURE IN THE UNITED STATES.*

BY WM. MAVER, JR.

(*Concluded from page 51.*)

In preparing the lead and machine for the operation of lead-covering the insulation, the operation is practically as follows: The hydraulic ram is dropped down, and carries the die block and cylinder with it, withdrawing the cylinder from the lead plunger, which is stationary. The cylinder is then filled with molten lead, which is termed a "charge." As it is not desirable to place the lead in a melted state over the insulation, the charge is allowed to chill somewhat before the operation of covering is begun. The time for this varies with the size of the cable, and may be from three minutes to four minutes. To prevent undue chilling of the lead, gas jets are placed around the cylinder. At the proper time hydraulic pressure is slowly applied to the ram. The pressure exerted on the end of this ram, which, in some cases, amounts to five hundred tons, causes the cylinder to rise up against the plunger, with the result that the lead is pressed down into the die, forming a tube or casing around the insulated conductor. At the same time, by suitable take-up reels, the cable is drawn through the die block. In other types of lead-covering machines the hydraulic pressure is applied from the top.

The lead is frequently alloyed with a small percentage of tin, about two per cent. This was done originally to protect the lead from the attack of acids, etc., but its utility in this respect is questionable. The tin, however, adds a certain amount of rigidity to the cable, which is useful in facilitating the operation of drawing it into the underground ducts. The tin, at the same time, adds a difficulty to the process of lead-covering the cable, the small percentage above mentioned almost doubling the pressure that would be required to put on the lead pure. The rate at which the cable may be lead-covered depends largely on the size of the cable, ranging from a few feet per minute, in the case of large cables, to several hundred feet per minute for the smaller cables.

The cable is now practically ready for drawing into the underground ducts. Some of the manufacturers of high-tension cables, however, first subject them to a severe breaking-down, or puncture test, by applying an electrical pressure from one and a half to three or four times the pressure to which the cable will be subjected in actual service. The pressure test varies with the length of time the test is to be applied. Thus, a cable designed to withstand a working pressure of 500 volts may be subjected to a pressure of 2,500 volts for one hour, or to 4,000 volts for a few moments. If intended to withstand a working pressure of 10,000 volts, it may be subjected to 15,000 volts for one hour or to an instantaneous pressure of 30,000 volts. The high pressures for these tests are developed by means of an alternating-current generator and step-up transformers. When the apparatus is ready, the wires leading from it are connected to the conductor, and to the lead cover of the cable, respectively. In the case of rubber cables, these tests are sometimes applied before the lead cover is put on, the cable being immersed in a tank of water. The ends of the cable are, of course, kept out of the water. In this latter case the wires run from the testing machine to the conductor of the cable and to the water in which the cable is immersed. If the cable is defective at any point, or if the pressure is too great for the inherent puncture-resisting quality of the insulating material, the current will "jump" and puncture the cable.

At such high pressures it is obviously essential that much care should be exercised in making these tests. The lead is removed, in the case of rubber cables, for a distance of several inches from the ends of the cable, as, otherwise, when a pressure of 20,000 volts or 25,000 volts is reached, the electricity will creep along the surface of the insulation (as it may be seen to do, also, on a sheet of thick glass subjected to high pressures), thereby reducing the tension of the current.

The maximum electromotive force used in the city of New York on underground cables is about 6,600 volts. This is employed by the electric traction and electric lighting companies. The longest circuit on which this pressure is used, measures about ten miles, while many other circuits range from one mile to five miles and six miles in length. The maximum electrical energy transmitted over these circuits from the power-houses to the various sub-stations, or points of distribution, ranges from 1,300 H.P. to 2,700 H.P. Both rubber and paper cables are employed for this service. The dimensions of one of these cables may be given; for instance, a three-conductor cable, rubber, now operating at 6,600 volts. Each conductor is made up of thirty-seven copper wires, giving a total cross-section of 250,000 circular mils, equal to 0.5 inches diameter. The thickness of the rubber insulating wall around each conductor is $\frac{5}{32}$ inch. This is a rubber-jacketed, or "split" insulation cable. The jacket is also $\frac{5}{32}$ inch thick. This ensures $\frac{10}{32}$ inch of rubber compound between conductors, and between any conductor and the ground. Each conductor, and also the jacket, is covered with a tape, put on spirally outside the rubber. The lead-covering of this cable is $\frac{1}{8}$ inch thick. The outside diameter of the cable is 2.56 inches. The interstices between the conductors are filled in with jute.

The highest working pressure for underground cables thus far proposed is that soon to be operated by a western company in the United States. This company has an electric plant, driven by water-power, from which the current is to be transmitted at a pressure of 25,000 volts, on overhead wires, a distance of about twenty miles to the city limits. From this point to the point of distribution in the city the power is to be transmitted through underground cables, at the same pressure, a distance of three miles. This cable consists of three stranded

*Abstract of an article on "Electric Cables for High Tension Service, How They are Made and Tested in the United States," in Cassier's Magazine.

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conductors, each of No. 2 B. & S. gauge. The thickness of insulation around each conductor is $\frac{7}{32}$ inch, and the thickness of the jacket is $\frac{5}{32}$ inch. The cable is lead covered.

Inasmuch as some authorities consider that 40,000 volts represent the maximum electrical pressure that can be advantageously employed on overhead lines for the transmission of electrical energy on a large scale, it is thought that the safe maximum pressure for underground cables has, perhaps, been reached, if not exceeded, in the installation referred to, owing to the difficulties to be encountered in maintaining the insulation at such high pressures. The operation of this circuit will be watched with much interest, and doubtless by its success or failure the pressure of subsequent installations of a like nature will be measurably gauged.

A CHOLLY-LULU.

BY L. C. HALL.

With head bent low over his daily account sheet, the worried receiving clerk was vainly endeavoring to reconcile his cash balance of sixty-seven eighty with the book-keeper's charge against him of seventy-three ninety-one. For the time being he was oblivious to all else. However, his dream of possible errors in the book-keeper's addition was sharply disturbed by a peculiar voice that seemed to come from above the top of the iron grating which surmounted the counter. "Is the New York rate 35?" it queried.

The receiver's chin jerked forward and he looked up bewildered, up and up, the height of a tall and incredibly slender body, until his astonished eyes rested upon the wizened, waxey face at its summit. For a full minute he made no answer, but instead he took in the figure of the person who owned the voice, running his eye rapidly up and down that part of the tall, willowy body visible above the level of the high counter. With a kind of amused wonderment he noted the miniature, close-brimmed, light fedora that perched jauntily on top of the small closely-cropped round head; the sharp, rather puny features; the high collar and gaudy cravat that circled the thin long neck; and the extraordinary cut of the light, loose-fitting overcoat which enveloped the wonderfully elongated body.

His survey finished, the clerk muttered to himself: "Great Cæsar! what a specimen of a man, or boy, he is," for the little old face might have belonged to either youth or adult. Aloud he finally replied:

"Yes, sir; 35 cents *and* a stamp."

The willowy form glided over to the writing counter, took up a pen and began writing a telegram. As one man, the receiver and all the other clerks arose from their seats and gazed over the counter in order to get a view of the remarkable pair of legs which they felt ought to go with so remarkable a body; a body that looked, indeed, like the five o'clock shadow of the office pole outside.

What was their greater amazement at seeing that, instead of a pair of long-drawn-out trousers, the person wore a narrow, clinging skirt, and that the overcoat was scalloped at the bottom in the latest feminine fashion.

The clerks gazed unanimously, mouths open, for a moment; then their jaws closed and they dropped again, as one man, back into their seats. For a little while thereafter they looked at each other in stupid silence. "What-er-er is it?" the telephone clerk gasped, thus breaking the spell.

It was a question not easily answered. The face, though smooth and beardless, was decidedly masculine in expression; and, while the voice was a clear tenor, the manner, gesture, and upper part of the dress were distinctly that of a man, a very freak of a man, to be sure, but one would have sworn to the sex. Indeed, so sure on that point had been the receiving clerk that he gave unconscious expression to his conviction in answering the question about the rate.

And yet, there were the fluted overcoat tails and the long skirt to be accounted for. Who, or what, on earth could he, she or it, be?

As the mysterious person continued to write, with back turned to the nonplussed clerks, the discussion over the writer's sex and queer make-up went forward in animated fashion. Some of the clerks contended for masculinity, while others persisted in doubting the plain evidence of their senses and stuck to the feminine side of the debate.

"Tell you what," said the book-keeper, an idea striking him, "let's see how the telegram is signed; the sig. ought to tell whether the sender's a she or a he."

Soon the telegram was written, presented to the receiver, stamped and paid for. And before the odd-looking figure had time to float, in queer undulations, out of the door, every man in the front office had gathered about the still bewildered receiver to get a look at the stranger's message.

Singularly enough, the handwriting was indeterminate; it might have been that of either man or woman. As for the telegram itself, it served in no way to lighten up the gloom of doubt surrounding the sex of its sender. It was addressed to Mrs. Frank Jones, and was signed simply "Frank."

Seeing this the clerks again looked at each other perplexed and amazed. Here was a woman, dressed, in part at least, like a man, sending a telegram to someone's wife and signing the name of a husband. What could be the solution of such a riddle?

Was the writer a man after all? and if so, why was he disguised as a woman? Was the addressee, Mrs. Frank, his wife or his mother?—his features were such that he might have passed for either husband or son. Or, was the writer in fact a woman, and was she sending the telegram in another's name? These and other questions were asked in the discussion that followed.

The delivery clerk suggested that Mrs. Frank might be the writer's mother, and the writer's own name Frances. "Frank is probably a pet name," he ventured. But the suggestion seemed

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too far-fetched to satisfy the intelligence even of the cross-eyed office boy.

There still remained but one chance of being able to solve the problem; the message, in its context, requested an answer and it was possible that that might give some clue to the sex of the stranger. "Let us keep a watch for the reply," said someone to the delivery clerk; "don't let it get by you, or the gang'll sandbag you."

The reply was long in coming, but it turned up at last along towards eight o'clock. It was addressed to "Frank Jones, The Vaudeville."

Again the clerical force was in a flurry. "Here, Henry VIII," said the delivery clerk to the fattest messenger in the "pen," "take this message to The Vaudeville and keep your eyes skinned. We want to find out if this person is man, woman, or what. It's just about dressin' time, and they may send you back into the green-room. If they do, you can size her up. Anyhow you get a program and stay until she comes on for her act. Get a move on, now, and lemme know what you find out as soon as you can."

In the interval there was no abatement of the interest in the outcome of the investigation. Time passed slowly, as if the clerks were waiting for a long deferred pay-day. During the wait wagers were laid, even the messengers putting up a part of their collections on the issue of the fat boy's mission.

In an hour or so, Herny VIII rolled in, puffing. In a moment he was surrounded.

"See her—him?" the delivery clerk asked, breathlessly.

"Yep. Trapeze artist. Dressed in tights."

"Dressed in—Good Lawd! Imagine such a thing in tights," said the receiver.

"How was she down on the bill?" asked the delivery clerk.

"As Signorina Slimletti; but that don't prove nuthin'— 'specially at the Waudewille."

"Didn't she have—er—did you get onto her curves?"

"Didn't have no curves. Straight as a cross-arm," replied Henry VIII.

"Well, then, is he a she, or is she a he?" persisted the questioner.

"Dunno."

"What d'you think?"

"Think her's a Cholly-Lulu."

"What's a Cholly-Lulu?"

"Don't you know what a Cholly-Lulu is?"

"No."

"Well, nuther do I—onless" with a wink, "it's one of them jays what makes six dots for a P."

And thus the question stands, for to this day the sex of the queer stranger remains a mystery unsolved. And for want of some better way to dispose of the problem, we have agreed to treat it as a permanent office conundrum, recording it as such on the virgin pages of the general "log." It is, in truth, another version of the story of "The Lady or the Tiger," with no man among us wise enough to lift aside the veil of doubt.

The Boston Ball.

The sixteenth annual ball of the Telegraphers' Mutual Aid Association of Boston, Mass., was held in Mechanic's Hall, that city, on Friday evening, January 25. Rarely has the hall presented a merrier scene and seldom have such elaborate decorations adorned its walls. Above the stage were large pictures of Professor Morse and Thomas A. Edison, and grouped between the two was the motto of the association, with the synonymy of good fellowship, "73," in massive figures of gold five feet deep.

Mr. Frank J. Flynn, of the "Globe," was floor director, and with Mrs. Flynn led the grand march followed by one hundred and fifty couples. Dancing was enjoyed from ten to three, with a short intermission for supper at midnight.

Nearly $700 was added to the reserve fund of the society and much credit for the successful outcome of the ball is due to the untiring efforts of the President, Michael F. Hart, who acted as chairman of the ball committee.



PRESIDENT MICHAEL F. HART.
Chairman of the Boston Ball Committee.

Among the invited guests present were: Mr. and Mrs. J. W. Larish, Miss Larish, Mr. William E. Durgin, Mr. and Mrs. J. A. Dougher, Mr. W. J. Anthony, Mr. Jeremiah Shaw, Mr. W. E. Bunker, Mr. and Mrs. M. C. Harrington, Mr. J. H. Burke, Mr. and Mrs. C. E. Lyman, Mr. and Mrs. F. T. Viles, Mr. D. A. Lamont, Mr. and Mrs. C. A. Richardson and Mr. J. J. Muldoon.

Others present were: Mr. D. J. Kelleher, Miss Margaret M. Doyle, Mr. P. J. Farrell, Mr. George Cunningham, Misses Cunningham, Mr. David Bailly, Mr. D. Connell, Miss Nellie Bean, Mr. and Mrs. J. A. Molloy, Mr. and Mrs. P. J. Beasty, Mr. and Mrs. H. L. Flynn, Mr. A. V. Losea, Mr. and Mrs. Daniel Carter, Mr. T. C. Devine, Mr. C. A. McManus, Mr. and Mrs. Ellis Gordon, Mr. R. E. Tobin, Mr. J. J. A. Gilrain, Mr. L. J. Reynolds,

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Mr. and Mrs. A. V. Mann, Mr. M. F. Finn, Mr. P. J. Farrell, Mr. and Mrs. C. W. Rice, Miss Mary Severance, and Miss Julia Herbert.

Mr. Dooley Reviews the Century.

The progress of the century is most humorously reviewed by the clever Mr. Dooley as follows:

"Great happenin's has me an' you an' th' ithers seen in these wan hundherd years, an' Great Britain has had so many geenuses that Mack is buildin' a new patent office to Wash'n'ton. . . . In me toime, Hinnissy, Oi've seen manny wondherful invinshuns interjooced. Oi've seen th' tillyphone put into iv'ry house, be which ye c'n talk to yure naybur acrost th' sthrate whin his number's not ingaged. Th' tillyphone is raysponsible f'r th' prisint overcrowdin' iv hell, an' th' gover'mint had to find a rimidy be diggin' up all th' r-roads an' startin' an opposishun. Oi've seen th' phonygraph invinted twict be th' sage iv Menloo Par-rk, an' no fam'ly's complate without one. Whiniver a man dies he has a wax cylindher put into his corffin with a message to his ancesthors wan thousand years hince. Oi've seen th' gr-reat invintions iv Perfessors Gilbert an' Sullivan in me toime fr'm Japanese mirrors to arc lamps. Phwat man don't kape a telpher line in his back gardin f'r hangin' th' close an' bringin' up th' pertaties? Secohmeters are at iv'ry corner iv th' sthrates ladlin' out self-inducshun, an' magnifyin' springs is to be bought in iv'ry sthore. Glory be, an' whin Oi call to moinde th' sthrate kyars pulled be horses which was fur-rest cousins to th' sausages in Schwartzmeister's windy, an' see before me th' electric kyars an' th' ought-to-me-billies toot-tootin' an runnin' down folks at iv'ry corner, me heart fills with pride, Hinnissy, to know that Oi'm livin' in th' ninetyeth cintury an' assistin' to make th' gr-reat elictric age. . . . Oi till ye phwat, Hinnissy, th' nixt cintury will be a perspirin', awr-fillin' ixistence, phwat with toobes undher th' earth shakin' th' houses an' makin' their rints to fall—an' flyin' machines knockin' down th' chimley-pots an' dhroppin' folks into th' back yards—an' submar-rines scuttlin' all th' r-river stheamers an' landin' furrin ar-rmies in th' Regent's Canal—an' messages fr'm Mars—an' coal givin' out—an' th' sun gittin' smaller—an' th' Yeller Per-ril—an' ars'nic in whisky—an' compulsory cree-mayshun—an' sperrits—an'——."

"Merciful hivins!" exclaimed Mr. Hennessy, who was as white as a sheet, "whin did th' new cintury begin?"

Sir William Preece Refers to His Boyhood Days.

Sir William Preece, one of the ablest and most eminent practical electrical engineers of the day, has been writing of his youth. Among Sir William Preece's inventions it is probable that his wireless telegraphy and telephone will rank the highest. Sir William introduced a wireless telegraph, based on inductions, in 1884, ten years in advance of Marconi, and his method is now in daily use by the English Post Office. Moreover, it is the only wireless telephone in existence—that is to say, the only system for transmitting speech through the ether.

"My parents made a great mistake," he said once. "I should have been a musician." Without questioning his Welsh musical gift, his parents were not so far amiss in making him an engineer. He certainly looks the engineer. Over the middle height, he is of a square, athletic build, and active habit, the sort of a man who can go anywhere and do anything. His face is massive and gives an impression of solidity, relieved by his large, intelligent brown eyes, his fine forehead and a mixture of good humor, sagacity and bonhomie. He is a broad, kindly, human sort of a man, without any stiffness or affectation, and with whom all, even the most diffident or youthful, can feel at home.

There is much more in Sir William than the engineer and man of science. There is a vein of romance and poetry, not to speak of music, which, though not obtruded, yet ever makes itself felt. He is practical, but it is easy to see that he might have excelled as a writer and a public speaker had he chosen. As it is, he is admittedly the best speaker in the electrical profession of England. Another talent of his, though less apparent, is administrative capacity. Sir William possesses the gift of reading men, choosing them and setting them to work for him without any trouble.

Sir William tells this story of his first lesson in science: "I was walking with my father along the banks of the River Seiont, that debouches into the Menai Straits at Carnarvon, my native place. I was then eight years old. We heard the sounds of a blast in the slate quarries in the mountains near Llanberis. I asked, 'How is it we hear those sounds from such a distance?'—the distance was eight miles. 'Look here, my boy,' said my father, chucking a stone into a placid pool of the river, 'see how the water is disturbed. See how I have excited waves in it, and how those waves progress in circles with definite velocity, and'—putting his hand in the water—'I feel those waves breaking against the back of my hand. The air, although you cannot see it, is as material as the water. You feel it in every puff of wind, and see it in every bending bough. The explosion of gunpowder in the quarry has disturbed this medium as the stone disturbed the water. Waves of air have been excited, they have speeded from Llanberis here, they have broken inside your ear, and they have given you that sensation which we call sound.'

"The house in which I was born was built on ground associated with the name of Helen, the mother of the great Emperor Constantine. It was called Bryn Helen. Close behind us was a fine, well-preserved specimen of the wall which surrounded the Roman fortress Segontium. In front of us was the magnificent Norman castle of Carnarvon, built by Edward I., in which the first Prince of Wales was born, in 1284. The presence of the Roman and Norman is evident everywhere about the beautiful country between the Snowdonian range and the sea. Dinases—the intrenched kopjes of the Roman—and the round stone tower of the Norman, still exist—imperishable evidences of the determined opposition to oppression and the love of freedom of the ancient Briton.

"I love to show my American friends these markings in the rocks of time. 'Why,' said one, inside

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the old castle, 'to think this was built and inhabited by courtly lords and ladies before America was discovered!'

"My connection with telegraphy began in 1852, and not in the days of my youth. It was brought into great prominence in 1845 by the capture at Paddington of a great murderer—Tawell—a Quaker, who had poisoned his paramour at Slough. Tawell nearly escaped, for the instrument could not give the letter Q. Tawell was described as a 'Kwaker,' which the receiving clerk had great trouble in deciphering.

"I was very early introduced to the realm of science in the lecture theatre of the Royal Institution. Faraday was then in his prime. His lectures on a 'Candle' contained more of romance to me than all the operas, plays and books that I was allowed to see and read. The summit of my ambition was to become his assistant, and this was realized in 1853."

The Signal Service Corps in China.

In the report of the chief signal officer of the American Signal Corps, operating in the Far East, after describing the early part of the work done by Col. James Allen to get an equipment from Manila to China and to Tientsin, the following interesting detail is given:

The conditions under which these operations were conducted in the field were most trying. They entailed not only marching as fast as the army and the construction of a telegraph line equal in length to the daily marches, but also the establishment of telegraph stations at night, their dismantling in the morning, and the dispatch of telegrams during a considerable part of the night. The difficulties were greatly enhanced by the fact that for days at a time the detachment was obliged to work without escort or any protection other than reliance on its own members.

Most unfortunately, this labor, exhausting at the best, was done under most unfavorable climatic conditions, the heat being so excessive as to frequently disable for hours the most energetic men of the Signal Corps. Many of the Chinese laborers were prostrated, and in one day two of them dropped dead from heat and over-exertion.

Lieut. Stamford was alive to the necessities of the occasion, realizing that the nearest telegraphic force was two days behind him. This was the military telegraph organization of the Japanese army, which, being near home, not only had its full equipment, but also a force of 100 enlisted men and 20 or more army carts. As it was, all telegraphic reports of advance operations of the allied armies in the march to Pekin necessarily passed over the Signal Corps line. The occupation of Pekin was thus reported.

It is to be added that during the advance the first information as to the capture of Yangtsun, on August 6, was received from Major Scriven, Signal Corps, although his telegram of that day was delayed three days in transmission—doubtless owing to the demoralized and congested condition of the Chinese land lines between Chefoo and Shanghai.

In view of the trying and unfavorable conditions recited, it is a source of gratification that the Signal Corps detachment justified the confidence placed in it by General Chaffee and by the chief signal officer. Through the labors of Lieutenant Stamford's men, the American army carried the first telegraphic wire into Pekin, where the first telegraph office was installed in the house of Minister Conger.

Fortunately, this action permitted General Chaffee, in Pekin, to extend courtesies, in the way of transmitting telegrams, to officials of the British, Russian, French, German, Italian and even Chinese governments, and likewise to the press.

So strenuous were the labors of the enlisted Signal Corps men, both before and after their arrival at Pekin, that it was with difficulty that telegraphic work was maintained at Pekin, owing to the large number of operators incapacitated by sickness.

Governmental Control of the Telegraph.

It is reported that the Dominion Government is considering the advisability of purchasing the telegraph systems of Canada, extending them enormously and operating them in connection with the postoffice department. It is also stated that it is seriously proposed to follow a similar course with the telephone, but in the case of the latter municipalities will be licensed, as in Great Britain, to operate the system within their own areas.

The Great Northwestern Telegraph Company and the Canadian Pacific Railroad Company practically control all the wires in Canada. The valuation of the property of both concerns, it is also said, is being made very quietly, and, should the arrangements between the Government and these two companies be complete on an early date, a bill dealing with the subject will go before the next session of the Dominion Parliament. To accomplish the purpose would involve the expenditure probably of from $20,000,000 to $25,000,000.

The Center of Population in the United States.

The center of the population in the United States is now at a point in latitude 29 degrees 9 minutes 36 seconds north, and longitude 85 degrees 48 minutes 54 seconds west, which point is in Southern Indiana, about seven miles southeast of the city of Columbus. Since the last census of 1890 the center of population has moved westward about fourteen miles, and south about three miles.

A special cable dispatch of January 30 from Berlin says: "Professor Slaby, of the Technische Hochschule, said in an interview to-day that he expected to revolutionize telegraphy if he was successful in applying his etheric system, which he calls spark telegraphy, to the present system of transmission by wire. He added that thousands of telegrams could then be transmitted simultaneously by the same wire."

TELEGRAPH AGE should go regularly to every one interested in the telegraph.

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Strange Railroad Coincidence.

A most remarkable coincidence, probably without precedent in railroad circles, has just come to lilght in connection with the accident on the Grand Trunk road, near Bethel, Me., which occurred early in the morning on January 18, says the Portland, Me., Express. At first thought the statement that the officials of the road were preparing to take care of the wreckage before the collision actually took place might appear improbable. Not only did they know of the accident in advance, but before the fatal smash-up they actually had two wrecking trains rushing at full speed to the scene. It all happened in a peculiar way, and has furnished a topic for unusual interest among the officials and workmen in the local yard of the Grand Trunk Railroad.

Road Superintendent Jones, between Portland and Montreal, happened to be at the telegraph key at the Portland office when he heard the operator at Shelburne send "freight away," meaning that the train had left that station. Like a flash the superintendent grasped the situation, knowing that a heavily loaded train was pushing on at full speed in the opposite direction on the same track.

There were two wrecking trains attending to slight troubles on the line, one being occupied with a car off the rail at Falmouth, and the other to the westward of Bethel. It happened, fortunately, that in each instance the work assigned to these trains had just been finished when the engineers received word from Superintendent Jones to hasten to Bethel.

The train at Falmouth made a hasty departure for the scene of the pending wreck, not waiting to pick up the regular wrecking crew, but depending on enlisting volunteers at the scene of the accident.

It is needless to say that the nerves of the operators along the line who caught Superintendent Jones's orders were keyed to high pitch. They realized that the throttles of the two wrecking engines, rushing from opposite directions toward Bethel, were pulled wide open, and they also realized that two engines with heavily burdened trains, representing thousands of dollars worth of labor, and freight to the value of many times that amount, were plunging toward each other on the same rails.

With every nerve strained to the limit, the operators along the line caught the climax by a flash at their tables. They realized the crash had come and that the wires went down in the wreck.

"It was enough to give the operators nervous prostration," said one railroad man, discussing the matter to-day, "realizing, as they did, that an awful accident was pending and that they were helpless to prevent it."

The dispatch with which Mr. Jones took action saved the road many hours of delay in the traffic, which at this busy time of the year means so much to the Grand Trunk road.

Send for a sample copy of the next issue of TELEGRAPH AGE.

Laying the First Ocean Cable.

Half a century ago the first messages sent by a submarine cable passed between Dover, England, and the coast of France. Science had again redeemed herself from the calumnies of ignorance, and what had before been popularly considered a wild and baseless chimera had become at length an established truth.

There is something fascinating, almost romantic, in the birth and development of all great discoveries. To trace the perfected system back to its original inception is like the exploration of some mighty river to its foundation head. The noble stream along whose shores great cities spring into existence as if by magic, and in whose beneficent course follow progress and civilization, traces its origin to some mountain spring that gushes petulantly forth in the midst of black and forbidding fastness.

Were the projects of the telegraph or the railroad traced, respectively, to the original inventors, the results, it is felt assured, would be sufficiently startling. In the case of the first we would find during the latter part of the last century a poor Spanish engineer, who, his comrades said, had some kind of an insane idea about sending messages by wires to great distances, even beneath the ocean. To look for the man who first conceived the idea of locomotion by steam is a still more melancholy task. Read the words of Marion de Lorme, who, in the year 1641, in company with the Marquis of Worcester, chanced to visit the Bicetre at Paris, that frightful madhouse in which were united the horrors of a prison and an inferno.

"We were crossing the court," writes De Lorme, "and I, more dead than alive with fright, kept close to my companion's side, when a frightful face appeared behind some immense bars and a hoarse voice exclaimed, 'I am not mad! I am not mad! I am not mad! I have made a discovery that would enrich the country that adopted it.' 'What has he discovered?' asked the guide. 'Oh!' answered the keeper, shrugging his shoulders, 'something trifling enough; you would never guess it; it is the use of the steam of boiling water.'"

All through the first half of the present century telegraphic experiments were going on, for it is a notable fact that though the man may die, his idea, if it contains within it the germ of truth, will thrive, and become immortal.

In 1813 signals were transmitted through seven miles of wire laid on the bottom of a pond. An English engineer officer, in 1828, made some more or less successful experiments with a cable insulated by means of tarred rope and yarn solidified with pitch. Submarine telegraphy, however, was not rendered thoroughly practicable until perfected by the brothers, John and Jacob Brett, who, over fifty years ago, laid the first ocean cable beneath the waters of the English channel.

The possibility of laying an electric cable in the Atlantic, from Europe to America, was suggested by Professor Morse as far back as 1843, but it was not until 1854 that Cyrus Field and

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others discussed the means of practically realizing the idea. In 1855 negotiations were carried on in England to establish a company and raise capital, which objects were attained in 1856. The New York and Newfoundland Telegraph Company connected Newfoundland with the mainland of America by cables and land wires, but the Electric Telegraph Company undertook the laying of a cable from Newfoundland to Ireland, with a capital of $1,750,000 in shares of $5,000 each. A length of 2,500 English miles of cable was ordered, and was completed by the summer of 1857. A piece of this cable is to be seen in the National Museum at Washington, D. C., among the relics of Professor Morse, contrasting forcibly with the jeweled decorations presented to the great inventor by nearly every monarch in Europe. This first cable consists of a conductor of seven fine copper wires, No. 22 gauge, twisted tightly together, forming a cord one-twelfth of an inch thick, and weighing 107 pounds per mile. This thickness is increased to three-eighths of an inch by a core of three layers of gutta-percha.

Outside the core is a jacket of hempen yarn, saturated with pitch, tar, beeswax and boiled linseed oil. The outer sheath consists of eighteen strands, each formed of seven No. 22 iron wires. The whole diameter is about six-tenths of an inch, and the weight one ton per mile.

The Niagara and the Agamemnon, the one lent by the English Government and the other by this country, took each 1,250 miles of cable, and steamed forth from Valencia (west coast of Ireland) on August 7, 1857. The Niagara paid out her portion of cable as she went. On the 11th, in an attempt to slacken the rate of paying out, the cable snapped, and the end sank in 2,000 fathoms of water, 280 miles from the Irish coast. The appliances on board not being sufficient to remedy the disaster, the two ships returned to Plymouth, where the two portions of cable were placed in tanks until the following year.

In 1858 another attempt was made to bind together the two continents by the slender metal rope. The Niagara and Agamemnon were again employed, but the submersion was to begin in mid-ocean this time, one vessel proceeding eastward and the other westward, after splicing the two halves of the cable. They left Valencia June 10, but it was not until 16 days later that they could finish the splice and commence the submersion. On the 29th a double breakage took place and 114 miles of cable went to the bottom, wholly severed from the rest.

The Agamemnon returned to England for improved appliances and further instructions, and a month was thus lost. On July 29, the two ships again spliced their two halves of cable in mid ocean, and proceeded with their work without further disaster. On August 6 the Agamemnon reached Valencia, and the Niagara and Newfoundland exchanged congratulatory messages through the whole length of cable. Soon afterward greetings were exchanged between the Queen and President Buchanan, and between a number of public bodies and official persons. The station at Newfoundland was connected by wires and cables with the general telegraphic system of America, and that at Valencia with the general system of Europe. The cable continued working until September 1, sending 129 messages (of about 11 words each on an average) from England to America, and 271 from America to England. The signals then ceased, and the cable has never spoken since, whether because, as has been facetiously remarked, the mermaids fancied it for necklaces, or because it had simply been talked to death, it is beyond the power even of science to determine.

Although an attempt has never been made to raise this cable, no time was lost in raising capital for another attempt, and an entirely new cable, much thicker and more costly, was constructed and put through the severest tests.

As this great rope was 2,300 miles in length, and weighed more than 4,000 tons, it was evident that it would take a huge vessel to carry and pay it out. The Great Eastern, at that time the leviathan of the ocean, was selected for the task. Three enormous tanks were built in the fore, middle and aft holds, from 50 to 60 feet in diameter each, by 20½ feet deep, and in these the cable was deposited in three vast coils. On July 23, 1865, the Great Eastern started for Valencia with her burden, and all went well until August 2, when the cable snapped from overstraining and sank in 2,000 fathoms of water. Then commenced the remarkable process of dredging for the cable. A five-armed grapnel, suspended from the end of a strong iron-wire rope, five miles long, was thrown overboard, and when it reached the bottom it was dragged to and fro across the line of cable by slow steaming of the Great Eastern. The attempt, however, was unsuccessful, and the Great Eastern returned to England, leaving (including the operations of 1857-58) nearly 4,000 tons of electric cable useless at the bottom of the Atlantic ocean.

Another cable was constructed, and on July 13, 1866, the Great Eastern set forth from Valencia, accompanied by the steamers Terrible, Medway and Albany, which were to assist in the submersion and in subsidiary matters. The line of route was chosen midway between those of the 1858 and 1865 cables, a few miles from each. The Great Eastern, after a few unimportant mishaps, at length entered on the 27th the harbor of Heart's Content, Newfoundland, in triumph, accompanied by the subsidiary vessels. After congratulatory messages had been sent and received on both sides of the Atlantic, operations were commenced for recovering the end of the 1865 cable, and completing the submersion. The Albany, Medway and Terrible set off on August 1 to the spot on the ocean beneath which the end of the cable was lying, or as near to it as calculations could establish. Certain buoys, left anchored there 12 months previously, had been carried away by the storms of the preceding winter, but the latitude and longitude had been very carefully registered.

The Great Eastern steamed from Heart's Content on the 9th, and started a series of grappling

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operations, which continued through the remainder of the month. The cable was repeatedly caught and raised to a greater or less height from the ocean bed, but something or other snapped or slipped every time, and down went the cable again. At last, when the patience of the crew was well-nigh exhausted, the end of the cable was safely fished up on September 1, and electric messages were at once sent from the spot to Valencia, describing this ultimate success. The relaying of this cable was begun at once and successfully completed.

It would require a considerable amount of space to enumerate the accidents and mishaps that have, in the past, interrupted the Atlantic cable system. Suffice it to say, however, that continued experiments have so perfected submarine telegraphy that accidents to the cable are now of extremely rare occurrence. Should one happen, the exact point affected is at once ascertained by an automatic electrical contrivance at the stations where messages are sent and received, and the most complete repairs could be accomplished in a very short space of time.—Exchange.

Straightening Out Wires.

J. C. Barclay, of Chicago, electrician for the Western Union Telegraph Company, spent a few days in Denver, Col., lately, straightening out the curves, as Night Manager Lawton puts it.

"You see," said the "old farmer," "we are like the railroads, and Mr. Barclay has found out that for a great many years we have been wasting force; in other words, we have been working to disadvantage, and in some cases in such a round-about way it has caused more or less unnecessary expense.

"Since our company has constructed so many wires to carry the increased business, Mr. Barclay, by a little clever headwork, has arranged the circuits so that all business between the principal cities in Colorado and throughout the United States is all being handled direct now, doing away with all relaying and unnecessary mileage. To show you how close Mr. Barclay figures these things down, while walking up Seventeenth street to-day he noticed that the cable carrying the Rocky Mountain News dispatches direct from Chicago, New York and other Eastern wires had a little slack in it after leaving our poles in front of the News office. I'm not a betting man, but if that cable is not shortened up eight and one-half inches before Mr. Barclay leaves town, I'll buy the cigars for the whole News force, providing they will smoke Wheeling stogies."—Denver Daily News.

It is announced that the Great Northern Company and the Eastern Extension Company have constructed land lines between Pekin, Tientsin and Taku, in China, in connection with the neutral cables, established last year between Taku, Chefoo and Shanghai.

A subscription to TELEGRAPH AGE is regarded as a good investment.

LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

Southern Pacific Telegraph System—The San Joaquin Division.

While not occupying so conspicuous a position on the map as some other divisions, the San Joaquin is one of the most extensive and heavily bur-



MR. J. H. SHERIDAN,
Chief Train Dispatcher San Joaquin Division, Southern Pacific Railway.

dened divisions of the system. Starting at Fresno and Mendota, in the centre of the great wheat and fruit belt of California, and stretching southward

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to the great orange region of Southern California, taking in the now famous oil fields, it constitutes the important connecting link between the Coast and Los Angeles divisions, as well as between the Western and Los Angeles divisions. The San Joaquin division is composed of the Fresno and Los Angeles main line, the Mendota, Exeter, Armona, Porterville, Pollasky and McKittrick branches, and the main line which now connects the Coast Division via Santa Barbara, upwards of 800 miles of track, with some sixty-five telegraph stations. The fifty-five trains on the time card in no way represent the amount of traffic, as a great many extras and different sections of regular trains are constantly required to handle the immense amount of local and though business between San Francisco and the East via the Sunset Route.

The head of the telegraph department of this division is J. H. Sheridan, Chief Dispatcher, with headquarters at Bakersfield. The dispatchers are: Mendota to Bakersfield—First, M. J. McGrath; second, W. B. Kennicott; third, C. O. Demsy. Bakersfield to Mojave (Mountain Division)—First, H. E. Sweetser; second, E. L. Braswell; third, T. P. Lee. Mojave to Los Angeles and Santa Barbara—First, J. T. Bell; second, A. J. Henderson; third, C. Duncan. Extra dispatcher, A. Sautter; day operator, H. L. Leland; night operator, H. L. Ketchum; while J. W. Dorgan is in charge of the wires and multiplex repeaters.

Some of the principal points on this division are represented as follows:

Fresno—Messrs. Henry Avila, T. F. Brosnahan, G. M. Brewster, Wm. Holmes and Mr. Vansickler. Mendota—First, Ed. Entleman; second, G. A. Mosher; third, W. E. White. Tulare—W. A. Fothergill and S. I. Titcomb. Hanford—J. D. Fish. Visalia—W. St. J. Caudron, agent; O. R. Porter, assistant. Fowler—G. A. Leon. Kingsburg—W. R. Odom. Traver—W. W. Martin. Tipton—D. C. Rexroat. Delano—D. L. Cecil, agent and operator; R. A. Fuller, night operator. Famoso—T. E. Keller, agent; M. M. Cecil, nights. Tehachapi—C. R. Chamberlain. Cameron—H. Stamford, agent and operator; H. A. Slayton, nights. Mojave—F. B. Warner, agent and operator; R. K. Cairns, first; P. Gafvert, second; C. S. Royston, third. Lancaster—H. F. Keeler. Ravenna—F. B. Lardner, days; C. F. Tyler, nights. Ventura—G. A. Starkweather, Jr. Lemaier—J. Nesbit. Huron—Miss Bancroft. Coalinga—Miss McFee.

Want of space prevents a more complete list in this issue.

D. L. Cecil, at Delano, and F. B. Lardner, at Ravenna, are two of the oldest employees on the system, having served twenty-nine and twenty-five years, respectively.

The Mountain Division, Bakersfield to Mojave, represents one of the most famous and dextrous pieces of railroad engineering in the world. The lowest pass, being 4,000 feet above the level of the sea, for a time baffled the shrewdest engineers, but finally, by doubling back upon and crossing itself, forming a complete loop, nature was triumphed over.

SAN FRANCISCO, CAL., WESTERN UNION.

Arrivals.—R. S. Hawcroft, Vancouver; W. G. Eccles, Fresno; Frank A. Jayne, Ithaca, N. Y.; W. E. Brooks, Winnepeg, and C. W. Hamilton.

Departures.—Messrs. Turk, to Los Angeles; Summerl and McCandlish, to Sacramento.

Mr. E. B. Peppin rejoices in the birth of a son.

W. J. Kirkwood, employed in this office for the past fifteen years, committed suicide by taking chloral. His mind was unbalanced, and he had recently been confined in the asylum at Stockton, but was discharged a few days ago, supposed to be cured. With freedom his old mania of suicide returned, with the sad results stated. Mr. Kirkwood was quite a noted character in telegraphic circles, being very generous in dividing his earnings among the poor. A number of years ago he inherited $20,000 from a relative, but refused to accept it, believing it to be wrong to receive inheritances.

CHARLESTON, S. C., WESTERN UNION.

Few changes have occurred the past three months, the only departures being Messrs. Clack and Galloway, who were both fortunate in securing better positions elsewhere. Following is the personnel of our present force:

Mr. D. M. O'Driscoll, manager; H. J. Carpenter, chief operator; H. C. Wallace, assistant chief operator; P. E. Ryan, night chief operator. Operators—J. W. Ryan, P. O'Reilly, B. W. Partridge, Jr., J. A. Partridge, R. L. Wallace, R. C. Reed and Edward Skerritt. Victor O'Driscoll, receiving clerk; J. F. Brenner, son of Superintendent Brenner, of Augusta, bookkeeper, and Louis Bartelle, delivery clerk, with a force of twelve messengers.

At the Cotton Exchange, Mr. W. J. Fleming is in charge; at the Charleston Hotel, W. A. Fripp.

Business holds up fairly well, though no extra force is required, the regular men always being willing to "scoop."

T. C. Brandon, of Chicago, was a recent visitor to this office, having arrived from Mexico on the trading steamer "Muchacha." Mr. Brandon exhibited some beautiful opals, Mexican drawn work, and a small but rare botanical collection, a part of which he disposed of in this city to the Charleston Geographical Society.

Mr. R. C. Reed is considered quite a comedian, and promises to make his mark in Irish comedy; in fact, we understand he has received a very flattering offer, which it is thought he will accept.

EVANSVILLE, IND., POSTAL.

The personnel of this office is made up as follows: Charles Shea, manager; W. A. Boyer, S. L. Dunning, and W. D. Herbst, operators; Miss Ella Boyle, cashier; J. A. Dugan, lineman, and six messengers.

A recent photograph taken of this force presents an intelligent and bright-looking staff. Manager Shea is in the foreground, while grouped about him are the messenger boys in their new district telegraph uniforms, and the lineman, the operators and Miss Boyle being in the background. The latter, however, loses no time coming to the front when business requires.

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CHICAGO, ILL., WESTERN UNION.

Mr. E. E. Cunningham took a flying trip lately to Clinton, Ind., his home.

Mr. James Cummins is recovering from his illness and is expected shortly to resume his duties in the St. Paul division.

Miss Mollie Gibbons has the sympathy of all in the death of a favorite brother in St. Louis.

Mrs. Hanson's husband is very ill, and is at the Alexian Brothers' Hospital.

Mr. Miles Standish lost his mother recently. She was buried at Columbus, Ohio, Mr. Standish's former home.

The big task of vaccinating the 2,200 employes of the Western Union force at this point is progressing merrily, the undertaking being confided to a doctor in the building.

Mr. Evan Jones, chief of the signal department, has been engaged in the stock business at Springfield, Ills., for a few weeks.

Mr. Thomas Nathan has been appointed as operator under A. C. Murphy, on Cottage Grove avenue.

Mr. D. W. Brown, of Armour & Co., formerly of a Western Union branch office, who has been very ill with appendicitis for the past week, is reported to be on the road to a speedy recovery.

Ohm Court, No. 673, C. O. F., composed of telegraphers, gave their third annual ball January 25, at Oakley Hall. The grand march was led by Mr. and Mrs. W. R. Holligan, and the affair was a decided social and financial success.

The many admirers of our old-time friend, Edward Everett, will be pleased to hear of his marriage to Miss Miabelle Wisdom on February 2. The bride is one of the brightest and best-known young women of Englewood society. Both start out in life under most favorable circumstances, and each have our unlimited good wishes for the future. Mr. Everett is just completing his legal studies.

Miss Edythe Marie La Chappelle, formerly manager of the Western Union office at Evanston, Ills., was married lately at that place to Mr. Baxter Bardwell Noyes. Many members of the telegraph fraternity were present.

The Chicago Telegraphers' Aid Society held its twelfth annual meeting January 27. The election of officers resulted as follows: J. Gallagher, president, Western Union Telegraph Company; P. F. Miller, vice president, Postal Telegraph Company; Joseph Laird, secretary, Board of Trade; W. E. Griffitts, treasurer, Postal Telegraph Company; executive committee, F. W. Rothery, C. A. Hawkins, F. M. Crittenton, Henry Jahn, O. M. Olsen, D. S. Anderson, E. G. Wells. The treasurer's statement for 1900 shows a cash balance on January 1, 1900, of $1,281.19; receipts for the year, $3,840.47. Total, $5,121.66. Disbursements: Sick benefits, $2,696.72; death benefits, $600; expenses, $307.76; balance on hand January 1, 1901, $1,517.18. Total, $5,121.66. These figures show that the society is in a healthy and flourishing condition and progressing steadily. The membership was 678 on the first day of the year.

KANSAS CITY, MO., ASSOCIATED PRESS.

Mr. John Charvart, who, for the past three years, has manned the second wire with great ability, and missed the benefits of home, has finally succumbed to the inevitable and taken unto himself a wife, Miss Louise Draper, of Ellsworth, Kan., a very charming girl.

Mr. W. W. Leeds, chief operator, has returned to work after a ten days' siege of grip.

Mr. W. W. Flynn has just buried his brother, John R. Flynn.

Mr. E. S. Fable, of Topeka, Kan., has been taking the "early" during Mr. Leeds' illness, and while Mr. Flinn was absent on account of his brother's illness.

Mr. E. E. Shawn, the veteran Associated Press man, who has been connected with The Star for several years, occasionally "sets in" for the boys.

Mr. J. B. Nelson, who came from the New York office last August to edit the Overland report, has made a host of friends by his genial, wholesouled manner.

Mr. Charles L. Reed, who has grown up in the office, and for the past eight months has been acting as clerk to Mr. Cutter, is fast developing the true principles of an Associated Press man, a good electrician and operator, and is becoming a good newsman.

Mr. J. M. Bonham, who is in his last year at the University Medical College, is already being called "doctor" by the boys, who occasionally seek his advice in a medical way.

Mr. U. L. McCall, the new night local editor, has the reputation of being the "longest" man in the service—he is six feet three. His work makes it plain that his aspiration for still greater heights will be realized.

CINCINNATI, OHIO, POSTAL.

Recent visitors were as follows: Minor M. Davis, traffic manager, New York; E. J. Nally, general superintendent Western division, and C. M. Baker, general superintendent of construction Western division, of Chicago; J. E. Morse, manager, Middletown, Ohio; R. P. Roseberry, manager, Lafayette, Ind.; C. A. Blair, manager, Rich-

Beware of Ointments for Catarrh that Contain Mercury,

as mercury will surely destroy the sense of smell and completely derange the whole system when entering it through the mucous surfaces. Such articles should never be used except on prescriptions from reputable physicians, as the damage they will do is tenfold to the good you can possibly derive from them. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, O., contains no mercury, and is taken internally, acting directly upon the blood and mucous surfaces of the system. In buying Hall's Catarrh Cure be sure you get the genuine. It is taken internally, and made in Toledo, Ohio, by F. J. Cheney & Co. Testimonials free.

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mond, Ind., and Miss M. S. Griswold, manager, Hamilton, Ohio.

Mr. C. D. Ely, of the superintendent's office, recently spent a few days in Cleveland and Painesville, Ohio, on account of the death of an uncle at the latter place.

The prospective Jeffries-Ruhlin sparring contest has given press business quite a spurt.

A new office has been opened in the Iron district with A. T. Duckett as manager.

A Postal office at Norwood, Ohio, with R. Whalen as manager, is another new one.

Miss Isabella Kellermeyer has been assigned to Millcreek branch, vice A. T. Duckett, who goes to the Iron district branch, and Miss Cecelia Vogel to Gerdes' Hotel, vice Miss Kellermeyer.

John Garner is still confined to his home with muscular rheumatism.

ATLANTA, GA., WESTERN UNION.

Mr. Jake Havis is receiving the congratulations of his friends upon the birth of a son.

The grip has caught a number of the men of late. Messrs. P. H. McDowell, J. M. Norman, night traffic chief; and W. R. Stuart are at work, after several days absence with the disease, while Messrs. Broadbent, Goodrum and Ballard are down with it.

Mr. John S. Scott has resigned and gone with Murphy & Co., leased wire system, at Athens, Ga.; R. J. Bellamy is subbing for the same firm in Montgomery, Ala., and W. J. Griffin does the blackboard work at Greenville, Ala.

Mr. C. A. Darlton, Superintendent of Telegraph for the Southern Railway, headquarters in Washington, was a recent visitor.

Mr. W. T. Gentry, recently appointed general manager of the Southern Bell Telephone Co., is an old telegraph operator. The fraternity congratulate him upon his steady rise with the telephone company.

PHILADELPHIA, PA., POSTAL.

The most conspicuous order lately put into effect was one which directly affected such operators employed on the night force who also work broken positions during the day; and quite a number of men on the day force, who were desirous of, but could not procure, any extra. In order to favor the latter class, it was found necessary to release a number of the former grade. These broker operators, however, will take kindly to this action, as they have realized, in frequent instances, that the Postal was always ready to give them some employment when their outside positions failed. Eight men on the day force are now given their coveted extra, with the prospect of more being called upon should it be decided to release other broker operators still retained on the night trick.

After spending considerable time in recuperating strength, Mr. William Madden has resumed his place on the first New York bonus. His side-partner, Mr. J. A. Thomas, found the constant heavy tension too severe, and called for a change. He was accommodated by the appointment of Mr. Roscoe Smith as alternate.

Miss Etta J. Stratton, from Conshohocken, has been transferred to this office. She is relieved by Miss Mabel V. Thwaite.

Mr. William Bowers is temporarily acting as receiver at the public counter nights during the absence of Mr. Morris, who is laid up with the grip.

We were favored by a visit from Mr. William J. Mundell, of the New York Electrical Department.

Mr. Zene Stoddard is the happy father of a daughter, the first child, and "Uncle" Bob Stoddard is greatly delighted with his new title.

With the opening of the new branch American District Telegraph office in the Real Estate Trust Company's building, a new position has been created and Mr. Daniel Carlin selected to fill it. He will assume the supervision of and act as solicitor for the offices located in the Harrison, Betz and Real Estate buildings. Mr. Christian Troeller succeeds Mr. Carlin in the position vacated at the Harrison building, with Mr. O. C. Crist, late of the West Philadelphia American District Telegraph office, in charge of the Betz building office, and Mr. Philip Reilly in charge of the new office in the Real Estate building, all of whom will be responsible to Mr. Carlin.

Mr. Samuel Lewallen acted as substitute for Manager John Hope, who was detained at home by the grip.

The Electrical Aid Society appears to have branched out on definite lines, according to the ways of the world, to increase sociability among its membership. Through the leadership of Chairman Hudgins and several meetings of his committee, arrangements have been made for a progressive euchre party and dance, which promises to be a very successful affair.

NEW YORK, POSTAL.

Mr. George Carroll has resigned on account of ill health and gone to his home in Canada.

Mr. George F. Randolph, of the leased wire board, has recovered from his recent illness and is back on duty again.

Mr. O. H. Davidson has been absent for the last three weeks, owing to a severe attack of bronchitis, from which he has not yet recovered.

Mr. M. W. Russell, of the night force, has returned to duty, after an illness of three weeks.

Mr. Charles Adams, of the Eastern division, who has had the grip, is at his desk again.

Mrs. Knerr, of the Eastern division, who was absent for a few days on account of illness, has returned to her post.

Miss Etta Tyrell, of the City department, has quite recovered from her recent illness.

Miss Viola Howe, of the City department, who resigned several days ago, and Mr. F. L. Dosher, a young business man of Brooklyn, were married February 14. Numerous friends wish the happy couple all manner of prosperity and happiness.

Mr. C. F. Leonard, formerly manager of the Cortlandt street and Broadway branch office, and more recently manager of the Buffalo, N. Y., office, has been appointed manager of the branch offices at Nos. 533, 621 and 703 Broadway, 125 Avenue D, and at the corner of the Bowery and Canal

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street. His staff is made up as follows: No. 533 Broadway, J. Keegan, chief operator; C. O'Rourke, operator; E. M. Tillman and T. J. Ryan, clerks; 621 Broadway, Mrs. Moore, operator; 703 Broadway, William Finley, chief operator; D. Mangan, operator; D. Juffett, M. Mack and A. Peterson, clerks; 125 Avenue D, D. J. McCauley, operator; Bowery and Canal street, S. Ochs, operator.

At the office, 853 Broadway, corner of Fourteenth street, the personnel is made up as follows: James P. McBurney, manager, formerly manager of the offices at Elizabeth and New Brunswick, N. J.; A. G. Sullivan, chief operator; J. G. Pierce, day operator; W. F. Drake, night operator; William Wolf, relief operator; J. J. O'Brien, receiving clerk; M. Roche, statement clerk, and Miss Aleda Kroeger, delivery clerk.

NEWPORT, R. I., WESTERN UNION.

The occasion of the Vanderbilt-French wedding, which occurred here January 14, attracted a large number of representatives from New York and Boston papers.

Had the wedding occurred in probably any other city of this size in the United States, special arrangements would have been made to handle the press matter. But Newport's capacity for handling a rush of business, such as occurs here yearly during the summer months, made this task an easy one.

Manager A. Woodle and Chief Operator George Ferrin, assisted by Operators Rowe, Austin, Howard and Harrington, handled upwards of 125,000 words concerning the wedding.

TORONTO, ONT., CANADIAN PACIFIC.

Mr. Sturrock, our local manager, has recovered from his recent illness, and is able to resume his duties at the office again. During his absence Mr. Phillips was the acting manager.

Mr. John Richardson, one of our "checks," has recovered from an attack of diphtheria that kept him in the hospital a month.

Broker positions appear to be coveted. Operators who have gone from this office to fill such are as follows: Mr. Daniel Urquhart, with Dixon & Co.; Mr. Harry Wilson, with Pellatt & Pellatt, and Mr. William Barber, with A. Ardagh & Co.

Business has not picked up very much as yet, but now, that the Dominion House is in session, no doubt a greater activity will soon prevail.

MONTREAL, QUE., CANADIAN PACIFIC.

Business is again picking up gradually, and we are now ready for the session work, which started on February 7, with the opening of the Ottawa Parliament. The speech from the throne was speedily handled by our staff, copies of the same being received and delivered ahead of the other company.

Mr. Jas. A. Collie has resumed his duties on the copper wire after a prolonged illness.

Miss J. Lucas and Mr. H. Keating are on the sick list.

Mr. A. W. Barber, superintendent at Toronto, Ont., was a recent visitor.

Harry Forsythe, of the superintendent's office, has recovered from an attack of grip and is around again.

Resigned—F. T. Robinson and Charles Elwell. The former has accepted a position with the Great Northwestern at Ottawa.

Owing to the recent fire, which destroyed the Board of Trade and several other buildings, Mr. G. W. Bancroft was put out of business for a day or two. A vacant space in the old Corn Exchange building, however, was soon secured, where Mr. Bancroft is now again at work. Mr. F. T. Jennings and Mr. F. J. Richardson did the needful in connecting the wires. Mr. Bancroft lost all his wires and office fixtures. No insurance.

Death—On January 10, Mary Loretto, aged 17 months, infant daughter of J. H. Egli.

Birth—On the 9th inst., a son to Mr. and Mrs. J. A. Fortier.

PHILADELPHIA, PA., WESTERN UNION.

On April 10 the Electrical Aid Society will give a progressive euchre, hop and banquet, the first of its kind since the society has been organized. It should be well patronized. The entertainment committee, consisting of Messrs. Sisk, Mecredy, Fitzpatrick, Hudgins and Culp, are bending every energy to make it a grand success, which no doubt it will be. Put your shoulder to the wheel, boys, and make the occasion a criterion for others to go by.

Miss Wilde, daughter of Wire Chief J. T. Wilde, who has been critically ill, is now convalescent.

We regret very much to announce the death of Peter Becket, a well-known Pennsylvania Railroad agent at Newfield, N. J.

The home of Mr. Samuel Warnock, day editor of The Associated Press, this city, was the scene of a conflagration recently, causing a loss of several hundred dollars.

Miss Sadie Arthur is enjoying several weeks' vacation.

W. C. Boyer is at his home in Dover, Del., recovering from a fit of sickness.

O. M. Pennypacker is the proud father of a son.

Rev. H. C. Fox, D.D., of Freehold, N. J., was a recent visitor and enjoyed the sights of a large telegraph office.

KANSAS CITY, MO., WESTERN UNION.

Our genial manager, M. D. Wood, with others of the Commercial Club, are making a combined business and pleasure trip through Texas, Indian and Oklahoma territories, and Kansas.

Mr. E. S. Cowie, formerly a collector of this office, and Miss Eleanor Pierson, whose resignation as manager at Coates Hotel branch was recently announced, were married on Friday, Dec. 27, and left immediately for an extended trip through Colorado and Utah.

The many friends of Morse H. Markley, were saddened by the receipt of a telegram announcing the death of his wife, which occurred at Eureka, Mo., on Sunday, January 27. She will be remembered by those who worked here ten years ago as Miss Katie King, the winsome little check girl of the Wheatstone department.

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Mrs. Archie Rainey, who fell from a street car and sustained severe internal injuries last October, and who has been very ill at the German Hospital, this city, is at home again and is recovering, which will be welcome news to the many friends of both Mr. and Mrs. Rainey in the telegraph profession.

Among our late arrivals we note that of Mr. V. Shackelford, from St. Louis. He will enter the employ of the Christie-Street Commission Co.

NEW YORK, WESTERN UNION.

Mr. Walter B. Richmond, night manager of 12 West Twenty-third street office, has recently become a grandpa, and it is quite safe to say he is the youngest one in the profession.

The Court Belle Branch, No. 24, Foresters of America, of which a number of operators are members, held a free vaudeville entertainment at the Lenox Lyceum in this city February 7. All present had an enjoyable time.

Mr. John J. Lynch, of this office, who served in the U. S. Volunteer Signal Corps throughout the Spanish-American war, has enlisted in the regular U. S. army, and is awaiting transportation March 1, from David's Island, N. Y., to the Philippine Islands.

Mr. Clarence Pendergast, formerly employed in this office, sailed from Boston February 3 for Cape Town, South Africa.

Mr. George Murphy, of the Stock Exchange, has the sympathy of his many friends in the death of his wife, which occurred January 30.

Miss Josephine S. Mullaney, who was employed at "195" for several years, latterly by a brokerage firm, died January 31 at her home in New York. Miss Mullaney was one of the best lady operators in the city, and was very popular.

Mrs. E. M. Hayden, whose long absence was caused by an attack of the grip, has not yet sufficiently recovered to resume duty.

Mrs. E. R. Mott and Mrs. S. G. Crans, of the Commercial News department, have returned to duty, after a month's illness.

Mr. John M. Casey, who left us March 23, writes from Denver, Col., saying that he is much improved, physically, by the change.

"41 Buren," for Van Buren, is one of the latest.

The Ellis Island, New York Harbor, Western Union office has been opened up, and Manager J. J. McCabe, ably assisted by Messrs. Joseph Pinto, A. J. Davis and S. Werstein, all accomplished linguists, have been placed in charge.

Mr. James W. Sisk, the building electrician, resigned February 7. Mr. C. N. Boileau, formerly employed by the Western Electric Company, has been appointed in Mr. Sisk's place.

NEW YORK PRODUCE EXCHANGE BRANCH.—Always a busy place, on an active market the force at this office is frequently taxed to its utmost to handle the immense volume of business. Manager Eipper and Chief Operator Bange have about them a carefully selected set of men, and everything moves like a piece of machinery. The personnel is as follows: Manager, T. C. Eipper; Chief Operator, G. W. Bange. Operators—A. D. Taylor, Gordon Blair, M. F. Hackett, Geo. A. Boyer, A. J. Dunham, J. E. Lynch, I. W. Garnett, M. J. Kelly, Wm. Lynch, J. D. Wooten, E. F. Maher, Joseph Peavoy, W. J. Welker, Miss H. E. Hennessey and Miss C. W. Stevenson. Short force—R. L. Kitts, D. J. Willis, J. E. Tower, Harry Gill, D. S. Talmage, A. MacKinnon, L. H. Chaillou, F. M. Casey Wm. Martin, J. G. Longmire, E. W. Morrison. Clerks—Miss M. M. Findley, J. W. Herrmann, J. J. Carey, Noel Gray, F. J. King, H. A. Jacobs, F. A. Lynn, Harold Price, H. C. Flynn.

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Any fifty-cent piece of music mailed eighteen cents. Rusticana, Anchored, Calvary, Palms, Flower Song, ten cents each. Anything at less than half publisher's price. I will sell you a good piano for one dollar per week, from $35 up. B. L. Brannan, 195 Broadway, New York. (Adv.)

Telegraph Linemen's Error.

A strange condition of affairs has developed in connection with the construction of the Yukon telegraph line from Quesnell, B. C., to Telegraph Creek and Atlin. Construction was completed between Quesnell and Hazleton, and then a party was sent out from Hazleton to continue construction north, while simultaneously another party was war started out from Telegraph Creeek to work south, and make connection with the Hazleton party about half way between those two points.

In their work one party struck along a certain valley, and the other party along an entirely different valley. The result is that the actual work of construction has overlapped, but instead of the wires being connected, the ends are seventy miles apart, with two gigantic ranges of mountains intervening. The result must be the destruction or abandonment of a large protion of the line already built, and the building of a new line.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for sample copy.

Readers of the TELEGRAPH AGE are referred to the advertisement of the Montauk Cable Company on page two of the front cover. (Adv.)

The Modern Service of Commercial and Railway Telegraphy (8th Edition, revised and enlarged), by J. P. Abernethy. The theory and practice, including railway station and express service. Arranged in questions and answers. 425 pages, 40 illustrations. Price $2.00, expressage prepaid. Address John B. Taltavall, The Telegraph Age, 253 Broadway New York.

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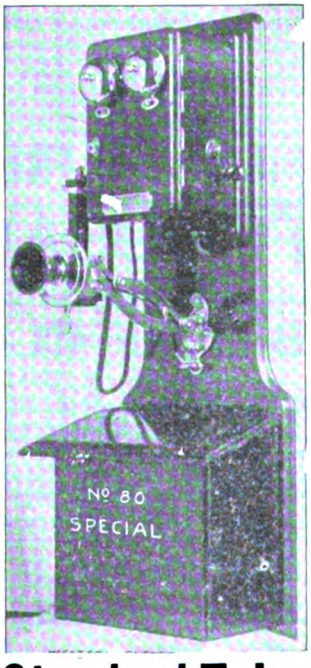
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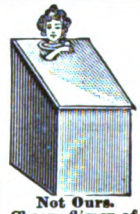
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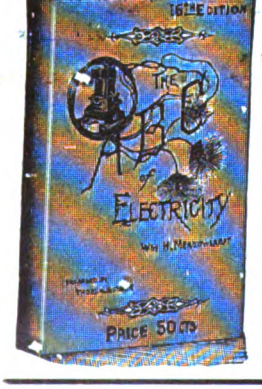
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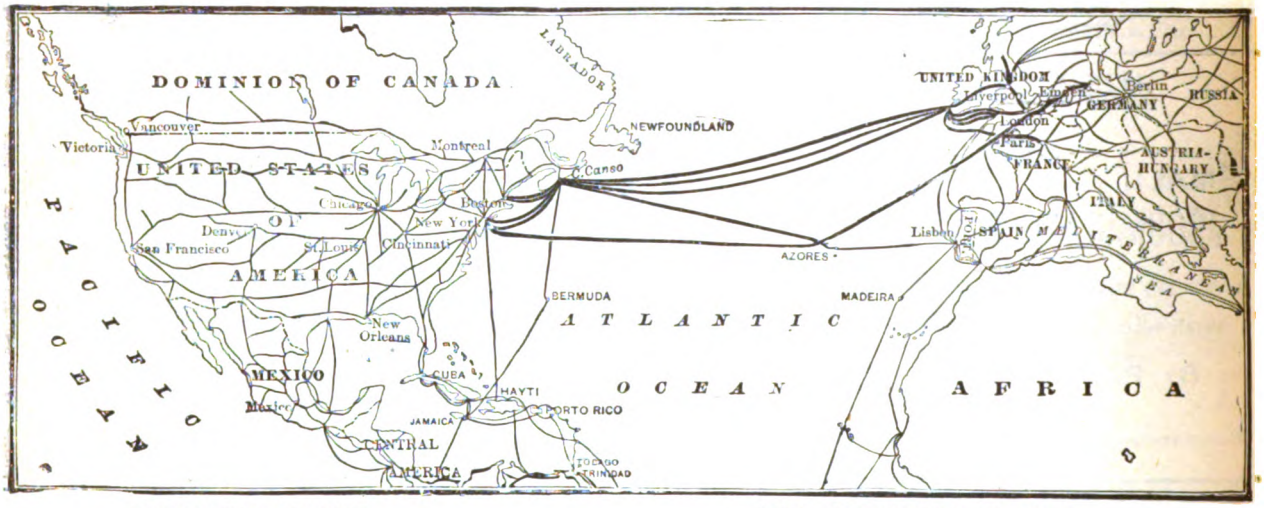
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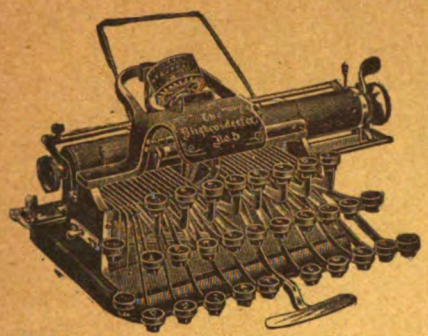
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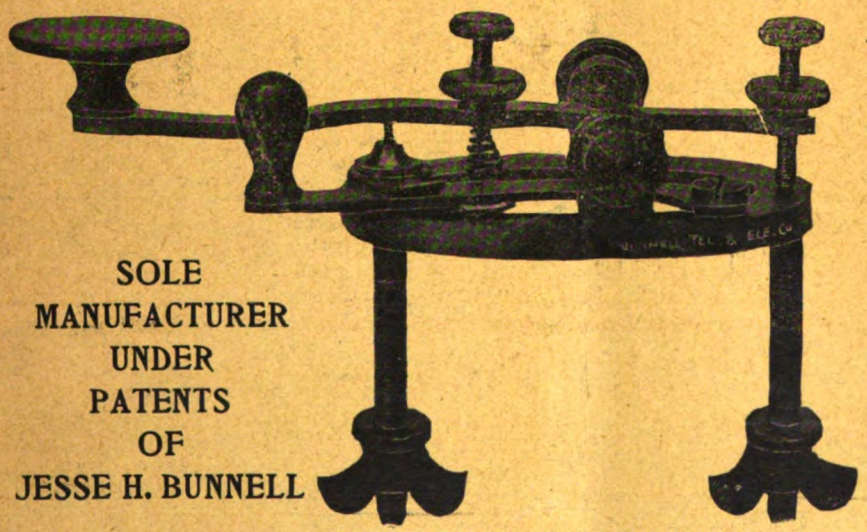


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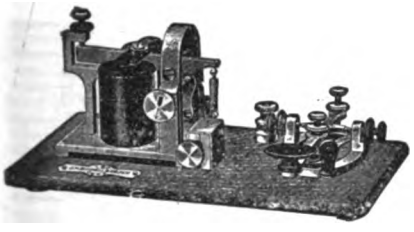
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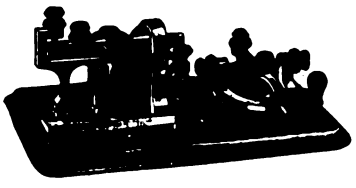
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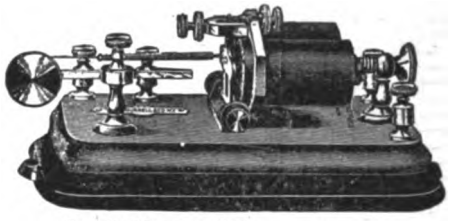
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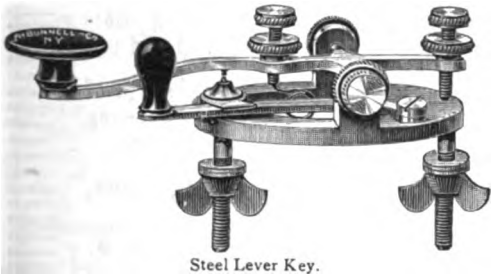
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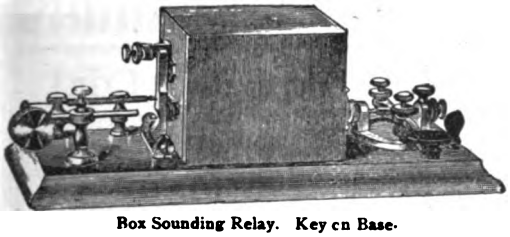
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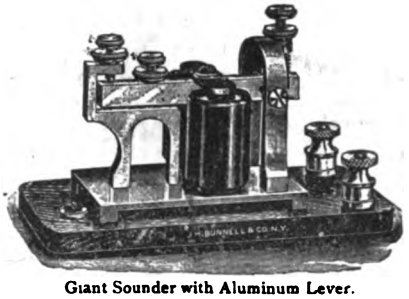
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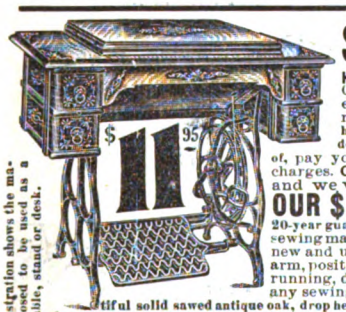
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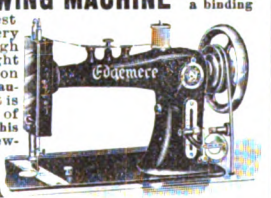
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Mr. Reed made $88.16 the first days. Mr. Cox writes: "Get all I an do, plate 30 sets a day. Elegant usiness. Customers happy." Mr. ance plates from $30 to $40 worth of oods per week. Mr. Smith says: Made $35 selling outfits last week." ur agents are all making money, o can you.

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FREE—Write Us Today

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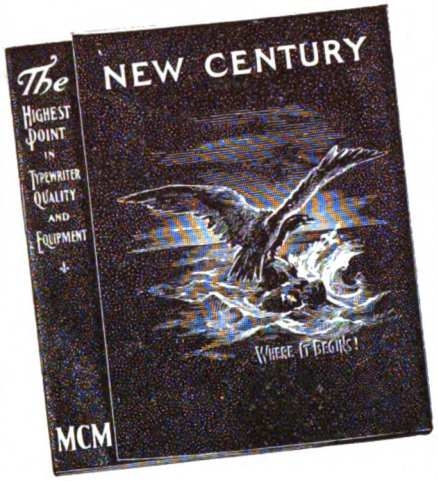
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It contains a lot of valuable information and will be of interest to any one using a Typewriter.

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MULTIPLE SERIES STANDARD CONDENSER.

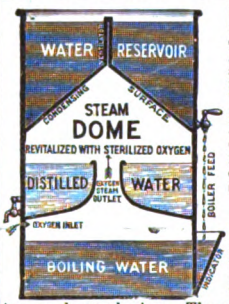
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For Aerial, Underground and Submarine Use.

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THE TELEGRAPH AGE.

No. 5. NEW YORK, MARCH 1, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

The Galvanometer—continued.

A novice at handling the galvanometer may pursue the analogy existing between a duplex circuit and a galvanometer still further as a means of indicating the manner in which he shall proceed in attaining certain ends. He has already learned that the artificial resistance in the rheostat of a duplex apparatus, properly balanced, gives the true conductivity of the external telegraph circuit, and, therefore, corresponds with the rheostat of a wheatstone bridge which measures the resistance of the wire attached to one of its arms, and that the two coils of the relay correspond to the two arms of the bridge.

In addition to ascertaining the conductivity of a wire, the capacity of the conductor for retaining an electric charge is frequently desired. In a duplex circuit this factor manifests its presence in the guise of what we all "static," and represents the amount of "bound" electricity a wire contains when charged with an electric current. The charge is only released, and is most detrimental, when the charging current is broken.

On a duplex circuit, when the distance battery is "broken" by the alterations in the polarity, the electric charge flows back through one coil of our home relay, which charge, unchecked, will produce a "kick," after the manner of a legitimate incoming current making its signal. We offset this impulse by meeting the arrival with an equal quantity of outgoing charge from a separate source, namely, our condenser.

Now, this procedure suggests a means of measuring the strength of the said charge, or, in other words, the electro capacity of the conductor. If the charge will affect the armiture of the relay it will likewise deflect the needle of a galvanometer. Therefore it is simply necessary to cause the released electric charge of a conductor to exert its influence against a galvanometer needle, note the degree of deflexion, and then, by means of an adjustable condenser, ascertain the employed capacity of the latter after the metal plugs have been so arranged that the needle is deflected to a degree identical with that obtained by the charge in the conductor being measured. This plan, however, is more theoretical than practical, for many reasons, but it conveys the idea. In practice

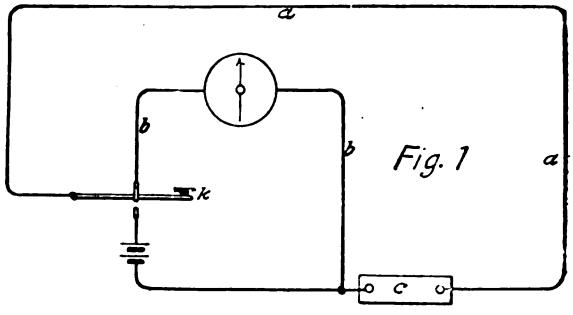


Fig. 1

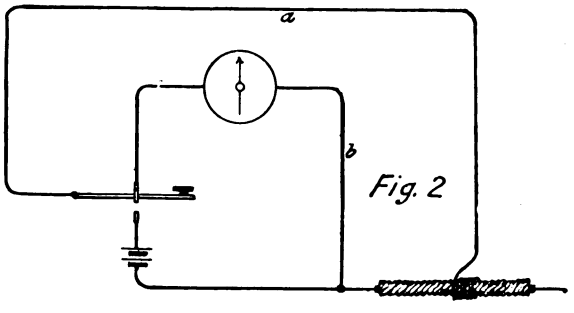


Fig. 2

it is more satisfactory to proceed in the following manner:

Secure a small standard condenser—say, one of ½ microfarad capacity—discharge it through the coils of a galvanometer and note the degree of deflection. The result obtained will serve as a constant or divisor. Then substitute the wire or cable to be measured for the condenser, and after charging the latter with the same battery, cause the conductor in turn to empty its charge through the galvanometer and again note the deflection. If the tangent of the latter deflection be, say, twice as great as the former, it will indicate that the electro-capacity of the wire measured is just one microfarad. As this result represents the capacity of the entire length of the line, it must, of course, be divided by the number of miles or poles in circuit as may be desired, in order to measure shorter sections thereof.

Fig. 1 shows how the connections should be made. Key K has two contact points. When depressed,

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the galvanometer circuit through wire b is left open and the battery is short circuited through the condenser and wire A—A. This connection charges the condenser. Releasing the pressure on the key suddenly, opens the battery and shunts the galvanometer through wire B—B, causing the condenser to discharge through the galvanometer coils and deflect the needle. If one volt be the value of the charging battery and the deflection shows 200 divisions on the scale with the half microfarad condenser employed, it is evident that 400 divisions will represent the "constant" for a one microfarad condenser charged with one volt.

Having found the latter constant, remove the condenser and substitute the cable to be measured, as shown in Fig. 2. Then proceed as before. Depress the key for about half a minute, in order to allow the conductor to become fully charged and note the deflection of the needle when the key is released. If the tangent of this deflection shows, say, 800 divisions, divide 800 by 400, and the quotient will give the true capacity of the conductor in microfarads.

In a like manner the electromotive force of a battery may be measured by employing a standard cell of battery as a constant. By the same process of substitution we compare the respective deflections of the needle due to the electromotive force of the standard cell and the battery suspected. The only difference lies in the reading of the results which are pronounced volts instead of microfarads..

In these days of direct reading apparatus a much simpler way of testing the electromotive force and condition of a cell or number of cells of battery is to obtain an ammeter and one cell of battery which is known to be in good condition in every respect, and short circuit the latter through the ammeter and note the deflection of the needle. Use the result as your standard or constant. Then substitute the suspected cell or row of cells for the good one and compare the result as indicated by the needle. If the deflection falls below the first test the battery requires attention.

(*To be continued.*)

Recent Telegraph Patents.

A ship's telegraph has been patented by F. W. Wood, Newport News, Va.

What is called a Fac-Simile telegraph (No. 667,454) has been patented by A. Pollak, Szentes, Austria.

Resignations and Appointments.

Mr. F. H. Knight has resigned as manager of the Western Union office at Poplar Bluff, Mo., the position being filled by the appointment of Mr. R. V. Huckeby, of St. Louis, Mo.

Mr. Frank M. Greene, manager of the Western Union office at Toledo, Ohio, has been succeeded by Mr. George L. Wagner, lately in charge of the Produce Exchange office at that point.

No up-to-date telegrapher can afford to be without TELEGRAPH AGE. Send for a sample copy.

Business Notices.

The great flower seed firm, that sends large-sized packets of reliable new crop seeds of all the newest and standard varieties at a little price, is S. Y. Haines & Co., 105 Boston Block, Minneapolis, Minn. Their regular patrons for many years past know their reliability, and that they fulfill every claim made in their advertisements and catalogues. They solicit correspondence with all our readers who love beautiful, thrifty flowers.

Owing to exaggerated reports that appeared in the daily papers regarding the fire which occurred at the factory of W. R. Ostrander & Co., on February 9 last, and which led some to suppose that the works were completely destroyed, we are requested to state that as a matter of fact the loss was comparatively small, and that it will be but a short time now when everything will be in order again. In the meantime, the firm has had no difficulty in promptly filling all orders from the unusually large stock on hand in their New York city salesrooms, 22 Dey street, and telegraphers need not hesitate to send in their requisitions.

The typewriter known as "The Chicago," manufactured by the Chicago Writing Machine Company, of Nos. 94-96 Wendell street, Chicago, is advertised elsewhere in this issue. The machine has been referred to as of a type well adapted to the needs of telegraphers, and this journal has been selected as the medium through which to reach this large class. The instrument is a low-priced one, and its advantages are clearly and distinctly stated. The machine has come into extended use, and the letters of recommendation that the manufacturers have received from satisfied users they are anxious intending buyers should first see and read, hence the request that they be written for. Operators will do well to send to the company for full particulars.

Those persons who want a garden will do well to write to James Vick's Sons, Rochester, N. Y., stating what plants most interest them, and a copy of Vick's Garden and Floral Guide for 1901 will be sent free. Every possible direction for the successful growing of flowers and vegetables of every variety is concisely set forth in this volume of 130 pages, so that much that is of interest to the amateur or professional gardener is contained therein. The many handsome half-tone engravings showing the actual appearance of various flowers, together with their names and a concise statement of their habits and other characteristics, tend to make the book of special value to those not very well posted on plant life, as through it they may learn to recognize and classify flowers and plants that are now unknown to them.

Mr. Charles E. Yetman, the well-known inventor, of Ilion, N. Y., writes:

"I feel like congratulating you upon the continued improvement in your paper. I read it always with great interest, and should feel it a hardship to be obliged to do without it. I hope that the various features of the paper may continue to advance in the future as they have in the past."

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Miscellaneous Items.

Mr. Harlan Fitch, an operator of the Signal Corps at Manila, in a recent letter, writes: "I find TELEGRAPH AGE just as acceptable and useful over here as in the States; your paper is not excelled."

Mr. Albert Eckert Chandler has been appointed manager of the messenger department of the Postal Telegraph-Cable Comany, 253 Broadway, N. Y., vice Mr. H. E. Wilson, resigned. Mr. Chandler is the son of Col. A. B. Chandler, of the Postal Company.

Mr. E. A. Coney, electrician, who has been in the electrical engineers' department of the Postal Telegraph-Cable Company, New York, for some time, has decided to accept a position under Manager Shirley, in the main operating-room of that company, with a larger field of usefulness.

Mr. W. L. Blair has resigned his position as superintendent of the Eastern division of the New-York, Chicago & St. Louis Railroad (Nickel Plate), with headquarters at Buffalo, N. Y., and accepted the position of superintendent of telegraph of the line, with headquarters at Cleveland, Ohio.

The death in January last of Edwin Holmes, president of the Holmes Electric Protective Company, of this city, caused a profound sense of personal loss to be felt by the employes of that company. The event has been given expression in a peculiarly fitting set of resolutions, drawn up and signed by fifty of the men longest in the company's employ. This testimonial of love and esteem has been executed within a handsomely designed scroll with pen and ink, and in a most remarkable and beautiful manner. The whole is a chaste conception, and discloses a highly artistic piece of workmanship. The enclosing frame measures about 34 x 40 inches.

The Reign of the Telegraph.

It is a far cry from the $15,000 cash capital of the Magnetic Telegraph Company in 1845 to the $3,975,000,000, which represented the cost of the electrical appliances in actual use in the United States at the end of the year 1900.

The Morse telegraph was the first attempt to use electricity for industrial purposes. The Magnetic Telegraph Company was organized mainly through the efforts of F. O. J. Smith, in 1845, and was the beginning of the present immense telegraph and telephone business and other branches of business in which electricity is used. The company's capital stock was $60,000, of which one-half went to the owners of various patents, and $30,000 of which was allotted to subscribers, who invested the comparatively insignificant sum of $15,000 in cash. This $15,000 was the working capital of the first telegraph company. That sum to-day would hardly pay for the furnishings in the general office of any one of the big telegraph or telephone companies.

The value of the property owned and used in their business by telegraph companies alone in this country is estimated by competent judges at $250,000,000, of which the Western Union Company holdings represent some $115,000,000. Every railroad has its own telegraph system; 800 cities have fire telegraph lines, and every city of any consequence has its police department telegraph system. In addition to this, there are in large cities systems of electric burglar alarms, "thermostatic protection" and district messenger companies with telegraph lines.—New York Mail and Express.

Personal Mention.

The friends of Morris W. Mead, superintendent of the Bureau of Electricity, Pittsburg, Pa., will be glad to learn that he has so far recovered from his recent painful accident of a broken leg as to be able to get about with the aid of crutches.

Mr. Charles C. Adams, superintendent of the Postal Telegraph-Cable Company, at Philadelphia, Pa., accompanied by his wife, has gone on a trip to Jamaica, West Indies. He goes to seek rest and recreation, and will be absent for several weeks. The voyage to Jamaica, made on the steamers of the United Fruit Company, is a most enjoyable one, for these fine vessels, which, in point of equipment and service, vie with the great transatlantic liners, afford the traveler every comfort.

Obituary.

Frank Irving Barnhart, a well-known telegrapher of St. Paul, Minn., died in that city on February 15, aged 33 years. He is survived by a widow.

Adolph G. Hummel, for about fifteen years superintendent of the Stock Quotation Ticker Company, New York, died February 16. He was about 45 years of age. He began his telegraphic career as an office boy, and, later, as ticker keyboard operator, had no superior. He kept zealously abreast of the times; had marked executive ability, and traits of character that won him many friends and admirers. Many representative telegraph officials attended the funeral services. Interment at Greenwood.

Recent New York Visitors.

Mr. E. B. Baker, general superintendent of the Southern New England Telephone, New Haven, Conn.

Mr. Harvey D. Reynolds, superintendent of the Postal Telegraph-Cable Company, at Buffalo, N. Y.

One day, in a town where he was to lecture, Rev. Henry Ward Beecher went into a barber shop to be shaved, whither he had been directed by a telegraph operator through whom he had sent a message. The barber, not knowing him, asked him if he was going to hear Beecher lecture. "I guess so," was the reply. "Well," continued the barber, "if you haven't got a ticket, you can't get one. They're all sold, and you'll have to stand." "That's just my luck," said Mr. Beecher. "I always did have to stand whenever I heard that man talk."

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A New Sea Wireless Telegraph System.

Alexander William Sharman, the electrical expert of Lloyds, London, arrived here, February 21, on the White Star line steamship Georgic. Mr. Sharman crossed the ocean for the purpose of experimenting with wireless telegraphy, and, after leaving Liverpool, he exchanged signals between the Georgic and Lloyd's signal station at Brow Head, Ireland. The experiments were successful, messages being received and sent through the air at a distance of twenty-two miles.

Mr. Sharman returned to the Georgic February 26, and the experiments will be resumed as the steamship approaches the Irish coast. It is understood that the experiments along this line will be extensive, and with a view to demonstrating the practicability of the system for marine signalling. The system of wireless telegraphy used by Mr. Sharman is not the Marconi system, although the fundamental principles are similar.

During his brief stay here, Mr. Sharman talked enthusiastically of his experiments. He said:

"The system adopted is that invented by Col. Henry Montague Hozier, secretary of Lloyds, and Mr. Nevil Maskelyne, of the Egyptian Hall, London, a well-known astronomer and electrician. The apparatus used in this system is altogether different from that employed by the Marconi syndicate.

"Our apparatus is simple in construction and easy to manipulate, so that the ordinary marine signalman is able to use it after a day's instruction. I boarded the Georgic Saturday, February 9, with my instruments. They were placed on a rude table rigged up on the main deck. No elaborate arrangements were made aloft for the tests. The collector conductor was simply fastened to the fore and aft stay, which stretches between the two masts.

"Mr. Maskelyne had gone to Brow Head with a set of instruments to assist in the tests from that end. At about 2:30 o'clock, as the Georgic was passing the Fastnet lighthouse, the warning bell on my instrument began ringing, telling me that Mr. Maskelyne, the patentee, was about to communicate with me from Brow Head.

"I then turned a switch that stopped the bell and started another part of the mechanism. In a second or two a slight clicking sound was heard, followed by the appearance of a slip of blue paper, on which was printed in Morse characters the message from Brow Head.

"Mr. Maskelyne telegraphed 'Hello, aboard the Georgic! How are you, Sharman?' To this I replied, 'I am here, and pleased to hear from you. All well aboard the Georgic!' The steamer was then ten miles fom Brow Head, and signals were exchanged as the Georgic continued on her regular course at usual speed, until she was twenty-five miles from Brow Head, when the tests were discontinued. The messages were easily read, although my receiver was not adjusted as nicely as it should have been, owing to the haste in setting it up. The rolling of the steamship also interfered somewhat with the experiments."

Mr. Sharman said that the greatest advantage of this system is that it works equally well in all kinds of weather.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; price, $1, reduced from $1.50.

"AMERICAN TELEGRAPHY," by William Maver, Jr., enlarged and improved; 600 pages; 475 illustrations; clear, lucid and comprehensive in its treatment of the subject, the ranking work of of its kind, and of high practical value to every telegrapher; bound in cloth; price, $3.50.

"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume, of which but a few copies of the first edition now remain, presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; price, $5.

"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones, 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Mr. C. A. Sherr, manager of the Canadian Pacific Railway's commercial telegraph office at Ashcroft, B. C., left there March 1, on a three months' vacation, which will take him to New York, Chicago and other places of interest in the United States.

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Scientific Principles and Discoveries Relative to Telegraphy.

In the series of weekly contributions by leading authorities, reviewing the progress of the last century, published in the New York Sun, Prof. T. C. Mendenhall, in an article entitled "Physics," discusses the scientific principles and discoveries relative to telegraphy, as follows:

In no other department of physical science have such remarkable developments occurred during the past century as in electricity and magnetism, for in no other department have the practical applications of scientific discovery been so numerous and so far-reaching in their effect upon social conditions. In a brief review of the contributions of the nineteenth century to the evolution of the telegraph, telephone, trolley car, electric lighting and other means of utilizing electricity, it will be possible to consider only a few of the fundamental discoveries upon which the enormous and rather complex superstructure of to-day rests. Happily, these are few in number, and their presentation is all the more important because of the fact that in the popular mind they do not receive that significance to which they are entitled, if, indeed, they are remembered at all.

The first great step in advance of the electricity of Franklin and his contemporaries (and his predecessors for 2,000 years) was taken very near the end of the last century, but it must be regarded as the beginning of nineteenth century electricity. Two Italian philosophers, Galvani and Volta, contributed to the invention of what is known as the galvanic or voltaic battery, the output of which was not at first distinctly recognized as the electricity of the older schools. By this beautiful discovery electricity was for the first time enslaved to man, who was now able to generate and control it at times, and in such quantities as he desired. Although the voltaic battery is now nearly obsolete as a source of electricity, its invention must always be regarded as one of the three epoch-making events in the history of the science during the past 120 years. For three-quarters of a century it was practically the only source of electricity, and during this time and by its use nearly all of the most important discoveries were made. Even in the first decade of the century many brilliant results were reached. Among the most notable were the researches of Sir Humphrey Davy, who, by the use of the most powerful battery then constructed, resolved the hitherto unyielding alkalies, discovering sodium and potassium, and at the same time exhibited in his lectures in the Royal Institution in London the first electric arc light, the ancestor of the millions that now turn night into day.

The cost of generating electricity by means of a voltaic battery is relatively very great, and this fact stood in the way of the early development of its applications, although their feasibility was perfectly well understood. Without any other important invention or discovery than that of the voltaic battery, much would have been possible, including both electric lighting and the electric telegraph. Indeed, electric telegraphy had long been a possibility, even before the time of Galvani and Volta, but its actual construction and use was almost necessarily postponed until a second capital discovery came to remove most of the difficulties.

This was the discovery of a relation between electricity and magnetism, the existence of which had long been suspected and earnestly sought. A Danish professor, Hans Christian Oersted, was fortunate in hitting upon an experiment which demonstrated this relation and opened up an entirely new field of investigation and invention. What Oersted found was that when a conductor, as a copper wire, carrying an electric current, was brought near a freely suspended magnet, like a compass needle, the latter would take up a definite position with reference to the current. Thus an electric current moved a magnet, acted like a magnet in producing a "magnetic field." The subject was quickly taken up by almost every physicist in Europe and America. Arago found that iron filings would cling to a wire through which a current was passing, and he was able to magnetize steel needles by means of the current. Ampere, another French physicist, studied Oersted's wonderful discovery both experimentally and mathematically, and in an incredibly short time so developed it as to deserve the title of creator of the science of electro-dynamics.

The first to make what is known as an electro-magnet was an Englishman named Sturgeon, who used a bar of soft iron, bent in a horseshoe form (as had long been common in making permanent steel magnets), and after varnishing the iron for insolation, wrapped a single coil of copper wire about it, through which the current from a battery was passed. There were thus two ways of producing visible motion by means of an electric current, that of Oersted's simple experiment, in which a suspended magnetic needle was deflected by a current; and that made possible by the production, at will, of an electro-magnet. The application of both of these ideas to the construction of an electric telegraph was quickly attempted, and two different systems of telegraphy grew out of them. One, depending on Oersted's experiment, was developed in England first, and afterward in Europe; the other, that involving the use of signals produced by an electric magnet, was developed in America, and was generally known as the American method. It has long ago superseded the first method in actual practice. Its possibility depended on perfecting the electro-magnet, and especially on an understanding of the principles on which that perfecting depended. For the complete and satisfactory solution of this problem, we are indebted to the most famous student of electricity America has produced during the century, Joseph Henry.

In 1829, while a teacher in the academy at Albany, N. Y., Henry exhibited an electro-magnet of enormously greater power than any before made, involving all of the essential features of the magnet of to-day. The wire was insulated by silk wrapping, and many coils were placed upon the

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iron core, the intensity of magnetization being thus multiplied. Henry studied also the best form and arrangement of the battery under varying conditions of the conductor. An electro-magnetic telegraph had been declared impossible in 1825, by Barlow, an Englishman, who pointed out the apparently fatal fact that the resistance offered to the current was proportional to the length of the conducting wire, and that the strength of the current would be thus so much reduced, for even short distances, as to become too feeble to be detected. Henry showed that what is known as an "intensity battery" would overcome this difficulty, discovering experimentally and independently the beautifully simple law showing the relation of current to electro-motive force, which Ohm had announced in 1827. He also invented the principle of the relay by which the action of a very feeble current controls the operation of a more powerful local system. It will thus be seen that the essential features of the so-called American system of telegraphy are to be credited to Henry, who had a working line in his laboratory as early as 1832.

Morse made use of the scientific discoveries and inventions of Henry, and, by his indefatigable labors and persistent faith, the commercial value of the enterprise was really established. In the meantime, considerable progress was made in Europe, Baron Schilling, a Russian Counsellor of State, devised and exhibited a needle telegraph. The two illustrious German physicists, Gauss and Weber, established a successfully working line two or three miles long in 1833, and this system was commercially developed by Steinheil in 1837. In England, Sir Charles Wheatstone made many important contributions, although using the needle system, which was afterward abandoned. Before the middle of the century, the commercial success of the electro-magnetic telegraph was assured, and in the matter of transmission of messages distance was practically annihilated.

Pearne Printing Telegraph System.

A printing telegraph system was recently tested at Omaha, Neb., for which the inventor makes great claims. The apparatus consists of a sender resembling the keyboard of a typewriter, and a receiver similar to the carriage and platen of a typewriter. The message is sent by manipulating the keys on the sender, and is received and automatically printed on a roll of paper by the receiver. A patent for the apparatus was granted to Frank D. Pearne on October 9, 1900. According to a newspaper description of the invention, "each letter is made by a certain motion of one of nine fingers, each finger being susceptible to four motions from as many grades of currents, supplied by storage batteries at either end of the line." A successful test of the system is said to have been made over a 554-mile line with current at 85 volts.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.

A Military Telegraph Operator in the Civil War.

Mr. Marquis D. Crain, night chief operator in the general office of the Western Union Telegraph Company, St. Louis, Mo., because of his competency and bravery, was sent on many dangerous missions and occupied many positions of great responsibility in his particular sphere of activity. In relating his career as a military telegraph operator, he said:

"I entered the service of the government as a military telegraph operator in March, 1862, in the Department of the Missouri, under the command of General Halleck. A military line had been constructed from Cairo to Fort Henry, about forty miles from Cairo, and thence to Fort Donelson. For some unknown reason Cairo could not hear anything whatever from the operators at Fort Henry or Donelson. General Halleck was satisfied that General Grant had fought a battle somewhere, and his anxiety to hear from him was intense. He called for George H. Smith, superintendent of military telegraph, and asked that an expert operator be sent down to Forts Henry and Donelson to find out why the telegraph line could not be made to work. I was detailed for that purpose. I shall never forget the time I appeared before General Halleck for orders. I was but 20 years old and very timid. As soon as I tremblingly announced who I was, General Halleck arose, and, speaking with great earnestness, said:

"'Young man, I want you to proceed to Cairo immediately and put that line to General Grant's headquarters in working order, if it takes a regiment of soldiers at every pole. Do this forthwith at whatever cost.' He then handed me an order to the Quartermaster at Cairo to furnish me immediate transportation to any point I designated. I arrived at Cairo at midnight and presented my order without delay. I said, 'I must go to Paducah at once.' The Quartermaster replied, 'The Belle of Memphis is the only boat in the harbor. It will cost the Government $300 to take you there to-night.' I said, 'I can't help that. I must go there just as soon as you can get me there.'

"At 2 o'clock the old Belle of Memphis steamed out. I was the only passenger. As soon as daylight came I saw what was the trouble with the wire. It was a "tree line." Insulators had been nailed on the cottonwood trees up the Ohio River bottom about 20 feet from the ground. The Tennessee, Cumberland and Ohio rivers were all blooming and fully one-third of the wire was under water. Of course, no power on earth could make it work.

"Proceeding up to Fort Henry, I found the operator. There I was furnished a horse and an escort of 125 cavalry to go to Fort Donelson. The great battle had been fought and the rebels routed. As I rode along close to the telegraph line closely inspecting every pole, I noticed around each pole a lot of soldiers. About a mile out from Fort Henry, while I was looking up at the wire, a soldier called out: 'Don't you look up at that wire; if you do, I'll shoot.' I soon succeeded, however, in establishing my identity.

"Upon inquiry I found that General Halleck's or-

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der had been received down there the day before, and a regiment of infantry had been detailed and distributed in squads along the line to guard every pole. As a matter of fact, there was no communication with St. Louis until the river fell at Fort Donelson. It was there I first met C. W. Hammond, now superintendent of telegraph of one of the great railway systems of the world. The acquaintance then made has ripened into the strongest bonds of fellowship.

"From Fort Donelson I went on horseback to Savannah with instructions to assist in constructing a military line from that point to Nashville and report to General Grant. While we were waiting for material to arrive, the battle of Shiloh took place. Savannah was seven miles from the battleground. I was standing beside General Grant when the first cannon boomed, and we started at once for the battle. Such a scene as was witnessed on the river bank! Ten thousand raw Ohio troops were rushing down the embankment to try to get on the transports! Officers were trying to stop them by holding their revolvers to their heads, to force them back on the hill to fight.

"General Grant took the field and ordered me back to Savannah, where a short line was in operation. My instrument was in the front window of an empty storeroom, and messages were coming in pretty fast. The wounded were being brought in from the battlefield and the surgeons were probing for bullets and sawing off arms and legs. There was the greatest confusion. The piteous appeals of the wounded soldiers—their crying and groaning—were so loud and constant that I was unable to hear the tick of my instrument. All I could do was to stand to my post, though it seemed at the time almost more than I could bear.

"Soon after that battle General Halleck came down from St. Louis and took command in person, laying siege to Corinth. Beauregard was well intrenched there with 125,000 men, and it was supposed that the South was calculating upon making the stand of their life there. I was ordered to serve as General Halleck's operator, with Levi C. Weir as cipher operator and L. D. Parker assistant. Weir is now president of the Adams Express Company, while Parker was, up to January 1, general superintendent of the Postal Telegraph Cable Company.

"General Halleck concentrated an army of 150,000 men on the battlefield of Shiloh in front of Corinth. The most complete military telegraph system ever constructed connected the wings of his army. We had a wire to Nashville, over which all orders from Washington came.

"This gave us a metallic circuit which placed General Halleck in immediate telegraphic communication with the three wings of his army. How the messages flew day and night! As many as 150 were received every day from Washington, mostly from Mr. Lincoln to General Halleck.

"After we had marched triumphantly into Corinth, for the first time in three months I slept in a bed. Telegraph headquarters were established in a house on the public square, while General Halleck had his tent in the front yard. Here we remained all summer. Halleck was then ordered to Washington to take command of the entire land forces of the United States. He asked me to go with him, but, as I was now thoroughly in love with the field work, I declined his flattering invitation. When I made known my decision he did not urge me to go with him.

"General Halleck was a most kindhearted and considerate man. He fairly loved the telegraph operators. I now recall an incident or two to show how he stood by us. One of his brigadiers arrested the operator at Jackson, Tenn., because he refused to show him the contents of a message that was addressed to another officer. As soon as Halleck heard of the arrest he hastily wrote a message to his subordinate and gave it to me to send. It read:

"'Release the operator at once. He did perfectly right. I want you to understand that operators are subject only to my orders and the Secretary of War. If you interfere with them again I will arrest you and bring you to Corinth.'"

"Upon another occasion, I was sent by General Halleck with a note to General Buell, that required an answer. When I reached Buell's tent, I was very tired, and while he was writing his answer I squatted on a camp stool. Buell became enraged at once. I thought he was going to blow me from a cannon's mouth. He bellowed out, 'How dare you sit down in a Major General's tent!' I jumped to my feet, scared almost out of my wits. I couldn't have been more frightened had he threatened me with court-martial. Upon my return to Halleck's headquarters, I related the incident to him. He smiled, and, patting me on the back, said, 'I guess we will have to overlook it, seeing it's Buell.'

"Notwithstanding all the horrors of war, which were always terrifying and appalling to me, we had some kind of sport nearly every day. I would often go to the General's Adjutant to get an order on the Commissary for a pint of whisky, to replenish the main battery. We played that on the General all summer. I was at one time sent from Corinth with a train of bridge timbers bound for Iuka. The train was attacked by a band of General Price's men, and bullets were whizzing all around me. I ran with my pocket instrument through a big cornfield, and escaped by daylight into our lines. When I walked into our camp, I was arrested for a Rebel spy. It took me three days to convince them that I was General Halleck's telegraph operator. When I got back to Corinth, I found that General Price had attacked the city in great force, a fierce battle had been fought, and a Rebel canon ball had passed right through the telegraph office, where I had been accustomed to sit. So I was forced to conclude that my expedition on a train of bridge timbers to Iuka was a very fortunate experience, after all.

"I had some funny experiences with some fellows who wanted me to accommodate them in sending their messages. As ours was a military line, all matter not directly connected with the

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army had to take its chances. I remember particularly a Jew, who had established himself in the Tishomingo Hotel, in Corinth, as a watch tinker. His stock in trade was a miscellaneous lot of galvanized jewelry. His business was immense, and he was making piles of money selling his wares to soldiers at fabulous prices. I had a fine new gold watch sent me from St. Louis. In winding it, I had accidentally pressed the stop spring, not knowing it had such a contrivance. I took it to this Jew to have fixed. He declared a jewel was broken, and pretended to put in a new one for me. His bill was $7.50. I was on to the whole business, and saw him start the watch. He held out for the $7.50, and I paid him. The next day he came rushing into the office with a message for St. Louis. Our army had been ordered to Jackson, Miss., and this shyster wanted to countermand his order for goods. The message read, 'Dont ship goods.' I told him my orders from General Grant were not to send anything but military business over the wire. 'My God,' said he, 'I will be ruined. I fixed your watch for half price. The main spring was broke.' 'Well,' said I, 'you told me a jewel was broken. But I'll send your message, since you're a friend of mine.' 'T'ank you,' he replied; 'how much is it?' 'Eleven dollars,' said I, laconically. 'My God! is that the rate to St. Louis?' he asked. 'No,' said I; 'the rate is $1.05, but I charge you $11 for taking advantage of me in that watch business.' It is needless to add that he paid it without another word.

"In October, 1864, I was given a position in the military office at St. Louis. The office was in the old Oak Hall building, at Fourth street and Washington avenue.

"About two weeks after I arrived in St. Louis, General Price represented to Jeff Davis that nine-tenths of the young men of Missouri were loyal to the confederacy. He told Davis that he could take 5,000 men, march into Missouri, destroy every railroad in the State, and march out with 50,000 recruits, armed. Davis immediaely gave him the necessary men. He struck Missouri in the southeastern part of the State and marched north, destroying bridges, burning cars and recruiting. Gen. A. J. Smith was started out of St. Louis with three train loads of troops to meet Price and drive him from the State. I was detailed as General Smith's cipher operator. Our trains came to a sudden stop half a mile east of Pacific, thirty-five miles from St. Louis. The town was then called Franklin. I jumped from the train and saw that the tank house was on fire. The enemy was in sight, planting a six-pounder on an eminence in Pacific. I cut the wire, put my pocket instrument in and established communication with General Rosecrans' headquarters. I sat upon the ties, using the iron rails for a ground wire. They answered the purpose admirably. Many messages were exchanged. Our skirmish line was out, and rapid firing of musketry was going on all around me. The rebels kept up a constant fire from the howitzer, sending cannon balls whizzing over my head high in the air. General Smith said: 'We are safe here. They have no range on us, and can't get any from where they are.' Price was covering a retreat. He was soon driven out of Pacific, and we proceeded westward after him. I often wonder how many people in this city know how near Price ever got to St. Louis. Thirty-five miles! Just think of it! I don't believe one man in a thousand knows of the narrow escape of St. Louis.

"The first night after leaving Pacific we camped on a farm, and while the boys were skinning the farmer's sheep and preparing supper, I had my instrument in the wire, working with Rosecrans' headquarters. That night, in a tent, I received a message addressed to General Smith, which has never been made public. At this late day, I feel that I can safely divulge its contents. It came in cipher, and read:

"'Nashville, Tenn.—My Dear General: I leave with my army to-morrow morning. I intend to cut this rebellion in two. Before you hear from me again you will have heard more about the brute Sherman.'

"The wire beyond the camp was so badly torn down that it was useless for me to proceed further. General Smith left me a bodyguard of 125 men, and established a courier line from there to wherever he halted. Two days later we were attacked by guerrillas, and driven toward Pleasant Hill in the night. The next day General Rosecrans took the field. He caught up with the main line of Price's army at the Little Blue, a battle was fought, and Price was driven into Arkansas with a less force than he came in with. Then came the proudest moment in my life. Upon returning to St. Louis with General Rosecrans, I was promoted to be chief telegraph operator, on account of conduct in the field, and remained in that position till the close of the war."

Telephoning Without Wires.

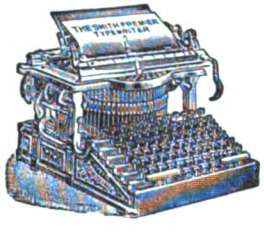
M. Gautier announces that the first step has been made in the discovery of wireless telephony. He ascribes the discovery to M. Maiche, the French inventor, says the Scientific American, and the experiments were carried out in the forest of St. Germain. The transmitter was placed in a house on the outskirts of the forest, and it was connected with the earth in the same manner in which lightning rods are connected. Two iron posts, 90 feet apart, connected by wire, were planted in the ground about a thousand yards distant. Voices and other sounds at the transmitter were clearly heard at an ordinary telephone receiver attached to one of the posts. M. Maiche claims that the communication is in a straight line, and not by wave current, but by a circuit current, thus enabling a given spot to be aimed at. If the receiver is not placed exactly in the direction given at the current, there will be no transmission, and receivers on either side of the line of transmission will not be at all affected.

A new cable between Portheurno (Cornwall, England) and St. Vincent (Cape Verde Islands) has been laid and opened for traffic, thus completing the new direct route between Great Britain and South Africa.

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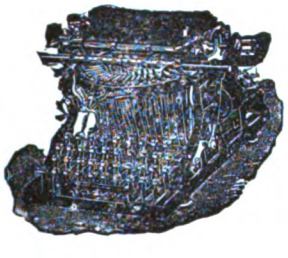
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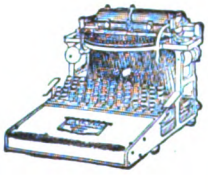


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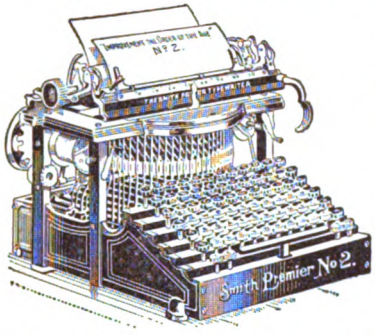
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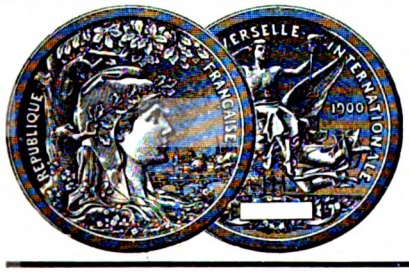
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CHANGES OF ADDRESS.—The address of a subscriber will be changed as often as desired. In ordering a change of address the *old* as well as the *new* address *must* be given.

NEW YORK, March 1, 1901.

An Excess of Wireless Telegraphy.

So the approximate date is definitely fixed upon for perfecting the apparatus by which wireless telegraphy shall be established across the ocean! After proclaiming that signals had been successfully flashed between the Earth and Mars, of course the comparatively insignificant distance that separates America from Europe ought to be vanquished without trouble. The wonder is that even a period of eight months should be required to arrange appliances for the purpose. It would appear that when gigantic distances, penetrating the almost immeasurable depths of inter-planetory space, had been annihilated, even though it became necessary to obtain the proper focus from a distant and isolated high mountain summit (presumably in order to escape the gaze of the vulgar), that so small an undertaking as to bridge an earthly measure of space would require no appreciable outlay of time to accomplish. Still, it should be remembered that there are no convenient mountain tops along the line of the Atlantic coast in which to find seclusion and repose of mind for needful test and experiment, and, perchance, by some occult means, overcoming the curvature of the earth, to obtain a peep of the European shore itself, to get "the lay of the land," so to speak.

The New York Sun, which lately has shone in a most luminous manner, indeed, regarding things electrical, rapturously describes the experimenter's optimism as a "gorgeous vision." Then, in a more reflective mood, querying whether it will be realized, cruelly dismisses the subject by adding: "We must let doubt and incredulity gnaw upon the bare statement."

"What Hath God Wrought."

Mr. W. A. Bole, as retiring president of the Engineers' Society of Western Pennsylvania, said recently: "The first message ever flashed over the Atlantic cable was from the good Queen Victoria to our President Buchanan, and the words were these: 'What hath God wrought?' In summing up the results of a century's progress in electrical matters, what more fitting words can be employed than these of the gentle sovereign of our mother country?" Well, that first message was rather dubious, anyhow, remarks the Electrical World and Engineer, but now the good old Queen is dead, some one ought to arise and defend her from this funny charge of plagiarism.

German Pacific Cable.

The possibility that German interests, in addition to late English projects, will also lay a submarine cable across the Pacific before American schemes shall have accomplished a similar purpose, is the cause of considerable adverse comment as to the tardy methods regarding this matter that have been pursued by Congress. This is heightened by the latest announcements that the Caroline Islands, which were promptly purchased by Germany from Spain after the United States had declined to take them, and which form natural landing places half way across the Pacific, will soon be connected telegraphically with the rest of the world. The news comes to the State Department from Consul General Guenther, at Frankfort. He has information to the effect that Germany and the Netherlands are planning to lay a new cable to connect with the Dutch East Indies and make them independent of the British cable syndicate. It is proposed to have the main line go to Shanghai, with branch cables from there north to Kiao-Chau, east to Japan and America, and south to the Indian Archipelago. The southern line will have its first station on the Bismarck and Caroline Islands, and from there will go west in a roundabout way through the Dutch dominions to the North Natuna Islands, without touching any of the British possessions. The North Natuna Islands will form the terminus of the line.

The Netherlands will construct the following cables: First—From Natuna Islands to Pontinac, Billiton, Banka and Palembang, in connection with the land line, which will traverse the country by way of Kalianda, through the Sunday Straits, to Batavia. Second—From Palembang direct to Batavia. Third—From Macassar to Ambon, where Germany will continue the cable to German New Guinea to connect with the main line.

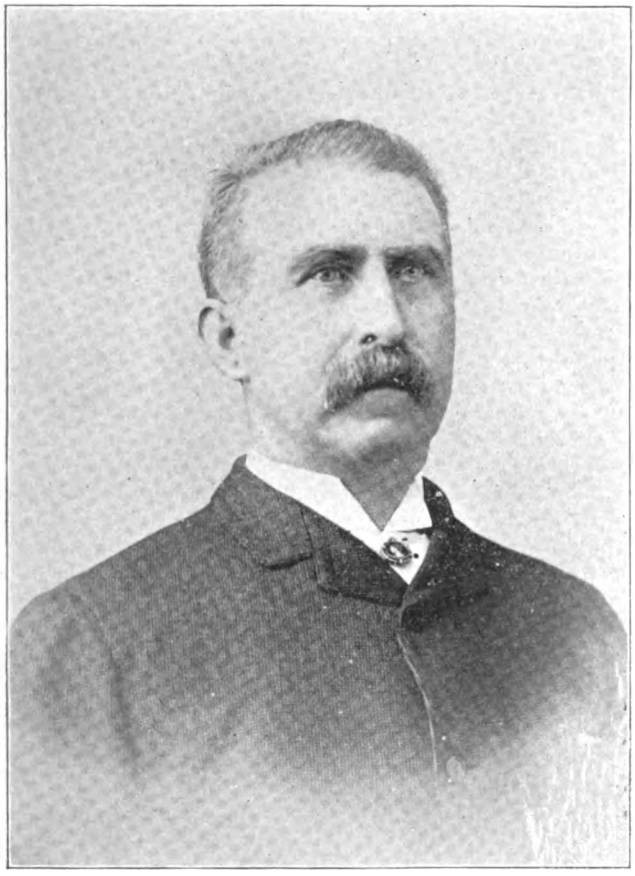
A proposed amendment to the sundry civil appropriation bill, authorizing a contract for building a Government cable from San Francisco to Hawaii, was favorably reported to the Senate, February 19, from the Committee on Commerce. An appropriation of $500,000 is carried, but the ultimate cost of the cable is not stated.

The articles, "Some Points on Electricity," published regularly in TELEGRAPH AGE, are filled with practical information for the up-to-date operator. Send for a sample copy.

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Annual Meeting of the Postal Telegraph-Cable Co.

At the annual meeting of the Postal Telegraph-Cable Company, held in New York, February 26, the gentlemen comprising the Board of Directors for some years past, viz.: John W. Mackay, Clarence H. Mackay, George G. Ward, Edgar C. Bradley, Albert B. Chandler, William H. Baker, Edward C. Platt, Sir William C. Van Horne, Chas. R. Hosmer and James W. Ellsworth, were re-elected for the ensuing year, and Mr. George Clapperton, traffic manager in New York of the Commercial Cable Company, was also made a member of the board, in place of Mr. George S. Coe, deceased.



MR. JOHN WILLIAM MACKAY,
President of the Postal Telegraph-Cable Co., New York.

The by-laws of the company were amended so as to provide for the office of Chairman of the Board of Directors, and Mr. Albert B. Chandler, who has served as President of the company from its organization, was elected to that position.

Mr. John W. Mackay was elected president, and the following named gentlemen were re-elected to their respective offices: William H. Baker, vice-president and general manager; Edgar C. Bradley, George G. Ward, Clarence H. Mackay, vice-presidents; Edward C. Platt, treasurer; Theodore L. Cuyler, Jr., assistant treasurer; John O. Stevens, secretary; Charles P. Bruch, assistant secretary and assistant general manager.

We are glad to learn that Mr. Chandler is to retain his rooms in the Postal-Telegraph building, and that although his well-known and long-cherished desire of retiring from the burden of business, which he has continuously carried for more than forty years, is now accomplished, in a modified sense, he is still to be prominently and intimately connected with the extensive properties which he has done so much to build up, and that this is done in such a manner as to be most agreeable to his associates and himself. We are also glad to learn that his health is so far restored that he has been at his desk since October last, almost as constantly as formerly, and with good prospects of complete recovery.



COL. ALBERT B. CHANDLER,
Chairman of the Board of Directors, Postal Telegraph-Cable Co., New York.

Postponement of the International Telegraph Conference.

All arrangements had been made for the holding in London, England, on May 15, and subsequent days, the tenth International Telegraph Conference, under the presidency of Lord Londonderry. The meetings of the delegates appointed by the States subscribing to the St. Petersburg convention were to have been held in the examination hall of the College of Physicians and Surgeons, in London. In consequence of the national mourning in England, it has now been decided to postpone the conference until next year.

A meeting was held of the directors of the Chicago and Northwestern Telegraph Company on February 14, at 195 Broadway, N. Y., for the election of officers. The result was the re-election of Mr. T. P. Scully, president, and Mr. A. R. Brewer as secretary and treasurer.

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A PLUCKY BOY LINEMAN.

BY WM. A. BOWDISH.

In the fall of 1879, when I was superintendent of telegraph service on the Southern Minnesota Railroad, a line repairer named Franklin sustained a severe injury by a fall, and during the winter was unable to attend to his duties. In reporting his condition, he recommended that Jonathan Hardrubble be employed in his place on the western division, as Hardrubble knew the line thoroughly, and was competent and trustworthy. On this recommendation, I immediately sent instructions to Hardrubble to assume Franklin's duties, and he did so. Save that his division was kept in excellent condition, and his reports were concisely worded and written in a neat, round hand, I knew nothing of him.

One morning in April I received a tersely worded note from the general superintendent, telling me that he had been informed that the lineman on the Flandreau Division was a sixteen-year-old boy, and suggesting that a man be appointed in his place.

I was not only surprised to learn that my model lineman was a boy, but regretted to discharge him without cause, as he had proved painstaking and efficient. Furthermore, good men, willing to bury themselves on the Dakota prairies for $40 a month, were not numerous, and undoubtedly difficulty would be experienced in finding a man to accept the place. Therefore, I took a half-dozen monthly reports that had been submitted by Hardrubble, and stepped across the hallway to the superintendent's office to make a personal appeal for the boy.

The general superintendent was a thorough railroad manager of long experience, sometimes gruff, but always just, and I was not without hope of inducing him to rescind his order. He listened to my statement, and then shook his head.

"There is too much hard work and responsibility in that position for a sixteen-year-old boy!" he declared, emphatically. "He may do his work well for a time, but occasion will arise when he will fail, and fail in such a manner that it will mean heavy property loss, if not loss of life. I must insist that you replace that boy with a man."

As the superintendent finished speaking, and I was about to leave the room, a messenger entered with a telegram. It was long and evidently important, as the superintendent read it through twice. He folded it into a small compass and slipped it into his pocket, and, as I started to leave the room, said:

"I have changed my mind about that boy, Gregory; you need not discharge him. And when opportunity to do anything for him arises, just call my attention to the matter."

It was two weeks before I knew the meaning of that unexpected change of orders.

Through the long, hard winter—still famous as the "big winter"—the young lineman had done his work as well as a man could have done it. From November 14, 1879, until the second week in March following, no trains were run on time between Wells, Minn., 150 miles west of the Mississippi, and Flandreau, Dak., the western terminus of the road; and in all those months not a dozen trains, freight or passenger, passed over the entire length of the road. The prairies west of Jackson were buried under snow drifted to an unheard-of depth, and in many places the tall telegraph poles barely protruded above the crust.

But on every day of that long, cold winter the wires west of Jackson were "working," and twice between December 1 and the day in March when the big rotary snow-plow cut its way through the disappearing drifts, the boy had tramped across the crusted snow, from the point where the three big engines working westward were "bucking" the drifts, to the crew of farmers and sectionmen slowly shoveling their way eastward.

With the last week in March the sun had melted what little snow had been left on the right of way by the shovelers. On the open prairies great bare spots of grass alternated with wavelike drifts—shadows of their former selves—and every tiny brook and swale was turned into a raging torrent or a lake by the melting snows. The warm chinook, sweeping eastward from the far mountains, tempered the atmosphere; and when the young lineman set out on his velocipede car to inspect every foot of wire on his division, nature seemed to give a mute pledge that spring was come.

Twenty miles east of the Dakota line, in the southwestern part of Minnesota, Rock River finds its way in a southwestern direction to the Big Sioux. Its course is down a valley varying in width from 300 to 400 yards. For miles the prairie is unbroken on either side of the valley, when suddenly there is a sharp descent of 75 or 100 feet to another level. The opposite bank is equally abrupt, and the valley looks as if it had been formed by a part of the prairie sinking and leaving a perpendicular bank on each side.

The engineers who surveyed the line for the railroad found it hard to determine how this valley should be crossed, the problem not being solved until a narrow gulch was found leading from the east to the bottom of the depression. From the mouth of this gully the line makes a sharp turn northward, running up the valley a short distance to a point where another ravine leads up to the prairie level westward.

The men who constructed the telegraph system avoided the dip into the valley by running their line of poles directly to the top of the descent, on the very verge of the precipice. Here a spile, one of the kind used in bridge work, had been erected, and on the opposite side of the valley another stout post had been placed. From these two poles the wire was strung across the valley, sagging in the middle, and hanging but a few feet above the tops of cars passing on the track below.

When Hardrubble reached the point where the telegraph line led slightly to the northward from the railroad, he lifted his light velocipede from the track and walked across the prairie toward the

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descent. As he approached the spile supporting the eastern end of the wire suspended over the valley, he saw that an insulator bracket was loose, permitting the mire to sag. His climbers were strapped to his feet, and he quickly made ready to replace the loosened bit of wood.

With his task finished, the boy rested his weight on the steel climbers and gazed on the scene before him. The top of the pole at an elevation of 20 feet gave him a view of the prairie for a distance of a dozen miles in either direction. Off to the west the line of rails, winding and twisting across the prairie, led toward the three spires and twoscore brown roofs of Pipestone, where a dark blot on the landscape indicated that the east-bound through passenger train was at that moment leaving the station. North and south, as far as the eye could reach, stretched the valley of the Rock, and down its center roared the river, in summer a tiny stream that might be forded anywhere, but now a torrent, fed by the melting snow.

The water was brown, and white, and yellow, and here and there great cakes of ice had jammed, sending the currents back against themselves until parts of the valley were transformed into lakes. He saw that at the railroad bridge below him one of these dams had formed, and that the ice was piled high against the structure. And then he saw what caused his heart to beat faster and the blood to leave his cheek. The western end of the bridge had been torn from its fastenings by the pressure of ice and water, and the rails from the west led out of the gully and around a point of bluff, and ended over a gulf filled with a foaming tide and masses of grinding ice cakes. This meant disaster to the coming train, and, perhaps, death to train crew and passengers, unless warning of the danger were quickly given.

For miles in either direction no bridge spanned the river, and to wade or swim the stream was impossible, the strong current and moving ice making the attempt almost certain death. Where the gorges had formed the ice was a grinding mass, and a glance revealed the fact that these could not be trusted.

Young Hardrubble's glances wandered up and down the valley, and then across the prairie to the westward, where the faint blur of smoke of a few minutes before had increased to a long, black cloud. In ten minutes the train would be swinging around the sharp curve of the gully into the valley.

Then his gaze returned to the river. The only thing spanning the current was the rusty telegraph wire, leading with a graceful droop from his perch at the top of the tall pole to the opposite bluff. Could that aid him? At the middle of the valley, 100 yards distant, it was not more than 18 feet above the ground. If in any way he could cross on that frail span, it would sink still lower under his weight, and he might readily drop to the soft turf on the western bank of the river.

An instant later he drove his steel spurs deeper into the pine pole, and as he clung with one hand to his unsteady perch, he hastily unbuckled the belt around his waist with the free hand. Attached by rivets to this stout strip of leather was a steel snap, from which, by means of a ring in the handle, was suspended his hatchet. He cast the hatchet aside, removed the belt, and clasped the steel snap around the wire. Then, throwing his weight on belt and snap, and withdrawing the spurs from the pole, he began the dash across river and valley.

As he released his hold on the timber, the steel loop slid smoothly down the slanting wire, slowly at first, and then more rapidly, his body carried forward by its own increasing momentum. The bank seemed to glide away from him, and almost in an instant he was above the raging river, the tossing waves sprinkling him with spray as he crossed. Then below him was the brown sod of the western bank, the wire sagging under his weight until his toes almost touched the earth.

Releasing his hold upon the belt, he fell headlong upon the water-soaked ground, but quickly gained his footing, scrambled up the embankment to the track, and ran panting up the gorge to meet the train. His frantic gestures soon brought engine and cars to a stop.

"Why not Hardrubble?" suggested the superintendent two years later, when I notified him that it was my intention to resign, and that consequently a new superintendent of telegraph must be appointed. The superintendent did try him, and after the Southern Minnesota Railroad was absorbed by the Chicago, Milwaukee & St. Paul system, another promotion awaited the former lineman. To-day he is superintendent of telegraph on one of the leading railways of the West. —The Youth's Companion.

The Plight of a Gallant Telegrapher.

Last Fall, when a party of Ute Indians attended a certain carnival, a well-known Western Union manager made small presents to a number of them, giving a particularly pretty squaw a string of beads. A few weeks later he received from the squaw an elegantly embroidered jacket, and then he learned that this exchange of presents constituted an Indian betrothal. He proposed when he gave the beads, and she accepted by sending him the jacket. The telegraph official wrote at once to the chief of the Utes, explaining that he did not want a wife, that he already had one, and that the whole thing was a mistake, due to his ignorance. Now he has received a reply, saying that all preparations for the wedding had been made, and that if he failed to be on hand there would be trouble.

A recent Berlin dispatch states that a number of prominent men representing commerce and industry have had a conference with the Secretary of Posts and Telegraphs regarding the frequent telegraphic interruptions on the lines to England, and declared that they would prefer to send their dispatches to London by way of New York, as they would then arrive sooner than if sent direct.

A well-known Western operator sends "Kirty" for "Kansas City;" another, the signature "John Smith & Cogaurblax."

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The Postal Library at Chicago.

Editor TELEGRAPH AGE:

The existence of libraries doubtless antedates the beginning of history. The Assyrian kings possessed large collections of inscribed terra-cotta tablets, and a library is known to have existed at Athens as early as 600 B. C. Until within a comparatively recent date libraries were established and maintained principally by monarchs, or were the accumulation of universities, and were not accessible by the people, but were reserved for professors and students, and their privileges restricted by many oppressive laws. At the present time it is made possible for literature to become the heritage of all men; it is a legacy not entailed upon a favored few. Benjamin Franklin, the wise and far-sighted American, really created the first public library in the United States when he persuaded a few associates to place their books in a common stock for loaning to each other. He lived to see his idea developed into a great library for the free and unrestricted use of the people. It is now possible for the smallest city or village in the country to possess a respectable collection of books, and their influence for good might compare favorably with those of the public schools. The Boston Public Library building, occupying 51,000 square feet of ground, is a dignified and imposing structure, and the beautiful paintings upon its walls make of it a veritable palace, while the Chicago Public Library building, with its fine architecture, its inlaid walls, marble halls, and crystal domes, is without a rival.

But what is of special interest to most of us is the Postal Library Association, which had its beginning in the New Stock Exchange building in December, 1895. The idea originated with Mr. E. J. Nally, general superintendent, who fitted up a pleasant room, furnished with book cases and reading-tables, and supplied with daily papers, magazines, etc., contributed to the use of the employes as a reading-room and library. In grateful recognition of the liberality manifested by the Postal Company, the employes agreed to contribute each a book towards forming the nucleus of a library. Nor did the contributors stop with "each a book," for Mr. G. C. Flegel, our manager at Westville, Ind., sent ninety-eight volumes, including many fine electrical works; the company's solicitors, Messrs. Frank J. and Charles F. Loesch, contributed twenty volumes of scientific works, which were carefully selected by Mr. J. E. Pettit, while Mr. E. J. Nally made a generous donation of books of a high order, that cannot fail to exert a beneficial influence on our readers. Many others also contributed largely. In order to continue the additions to our library, the original charter members, 107 in number, and those joining later, pledged themselves to contribute a nominal monthly sum to be devoted to this purpose. This has resulted in the accumulation of a library of nearly a thousand volumes and many maps, magazines and periodicals, the latter of which are circulated among our members the same as bound books. The periodicals and magazines are, after a certain period, sold at auction to the highest bidder, and the proceeds derived from this source goes to increase the association's purchasing fund.

The first regular meeting was held in the reading-room, May 12, 1896, Mr. J. E. Pettit presiding, and Mr. G. L. Durand acting as secretary. Mr. Pettit was elected president for the ensuing year, and his re-election each year since is the strongest evidence of the appreciation of his painstaking efforts and the high esteem in which he is held. The entire management of the library has been turned over to the employes, who framed the policy of the association. One cannot better give an idea of the standing of the Postal-Telegraph Library Association than by quoting from our president, in his annual letter: "The association is no longer in the experimental stage; it is located permanently with us, and it needs no words from me to prove that it is an evidence of our advancement."

In connection with and under the auspices of the association, there has been organized an electrical class, which meets Tuesday and Thursday evenings and on Saturday afternoons, when lectures on electricity and system of telegraph accounts are given. Learning and merit have no rank and seek no display. It is possible for all to meet here on a common plane, and the utmost harmony and good feeling characterizes our relations with each other. The support and coöperative interest shown by the officers of the company warrant our looking forward to good results, and to render efficient aid to all who are in earnest to attain a degree of excellence which will fit them for higher usefulness and greater responsibilities. The electrical studies are confined to the handling of quads, duplexes, repeaters, and the instruments in daily use in the telegraph business. On Tuesday evenings of each week the instruction is confined to the general accounting system peculiar to the Postal company. The membership is large, and increasing daily, and the interest shown by the employes is such that we do not hesitate to predict a fine future for the association. LENORA E. PATTEN, Secretary.

Chicago, February 21, 1901.

[We are heartily in sympathy with the purposes of a library of the character above described. It is stimulative and educational to a degree, shedding abroad a moral and refining influence, and is deserving of a devoted and loyal support. Such efforts to provide for the welfare and higher pleasures of the telegrapher should receive every encouragement, and may profitably be emulated elsewhere. New York city, with its vast telegraphic interests, ought to be a worthy leader in a movement of this kind.—Editor.]

Incidental to the inaugural ceremonies in Washington, on March 4, which doubtless will be one of the most imposing and largely attended affairs of the kind ever held, additional telegraph wires will be strung to a number of prominent points, in order to facilitate telegraphic transmission, which promises to be heavy.

You can't afford to be without TELEGRAPH AGE.

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Something About Train Dispatching.

Upon the Man at the Telegraph Key rests a big share of a railroad's responsibility for the safety of the traveling public. The Man at the Telegraph Key, says the Albany Argus, gives hail or farewell to every train that enters or leaves the Albany Union station, and all along the line of the New York Central's safeguarded block system the Man at the Telegraph Key in the signal tower speeds the incoming and outgoing train on its way in an uninterrupted line of intercommunication.

The work and responsibility attached to the work of an operator is best appreciated when one studies the daily routine attached to a division like that of the Mohawk Valley, which, under the direction of Mr. G. D. Gager, chief of train dispatchers, has its office in the Union station. The click of the various instruments never ceases. As one set of operators finishes its work, another set is ready to take its place; and, day and night, year after year, the wires are kept constantly busy. On this division, including the men in the signal stations, there are 150 operators employed.

Upon the chief train dispatcher rests the major share of the responsibility. There are others above him, it is true, but his business is to see that all orders sent out over the wires reach their destination without delay, and that every operator in the division performs his duty. He must see that train orders are issued in accordance with the prescribed forms, he must travel over the line at convenient and frequent intervals, examine the condition of every instrument along the line, and see that only one person issues train orders over the same territory at the same time. He must see that every dispatcher reports regularly, that each issues orders which are received, promptly, and that the orders are according to the prescribed forms and rules.

In the main office there are nine dispatchers on duty, six for the main road and three for the West Shore line. From this office is issued every order necessary to dispatch a train from Albany to Syracuse, the end of the division.

Each order is necessarily brief, and in order to abbreviate oft-repeated orders, numbers are used for whole sentences. For instance, "5" would mean: "Close your key; you are breaking." "12" would mean: "How do you understand?"

All orders must be sent as given without change or alteration, and they are numbered consecutively for each day, beginning with No. 1 at midnight.

Orders are addressed to those who are to execute them. Those for a train to the conductor and engineman, and also to a person acting as pilot. A copy for each is supplied by the operator at the station at which the order is received. A copy of every order is kept by the operator in a book provided for the purpose, together with a record of the signatures of the person receiving the order.

When a conductor or engineman receives an order, he is required to read the same aloud to the operator, in order that he may be sure that he understands it, before acting upon it.

When an operator receives an order, he is obliged to repeat it back to the office from which he receives it; and the office sending the order notes whether or not it has been correctly repeated. The operator receiving an order preserves the lowest or last copy, which is signed by the person receiving the same. On this appears the time when it was received, the operator's name, the date and train number, for which places are provided in the blank spaces.

These are sent to the superintendent. In addition to this, operators are required to report to the superintendent the time of departure of all trains, and the direction in which extra trains are moving. They also make a record of the arrival of all trains, but they are not required to report this, unless requested.

South African Telegraphic Interests.

Mr. Somerset R. French, the Postmaster General of Cape Colony, is quoted in a recent interview in "South Africa" on the telegraphic situation in that country, incident to the Boer war, as follows:

"The Boers not only cut our telegraphic lines again and again, doing a vast amount of damage, but, as you will remember, destroyed practically the whole of the Orange River-Kimberley section of the main telegraph line, carrying thirteen wires, which ran by way of Fourteen Streams to Pretoria and Johannesburg. That line, so far as Cape Colony is concerned, has been restored; but as yet it is impossible, under existing conditions, to maintain it across the country beyond Fourteen Streams." Thus, as Mr. French pointed out, the telegraphic routes with Pretoria and Johannesburg are greatly restricted by reason of their having to follow the British lines of communication.

"As regards Natal," Mr. French observed, "we were able, as a precaution, to construct an alternative route, which, fortunately, had not to be relied upon. The Cape and Natal Governments between them constructed a telegraph line connecting the systems of the two colonies by way of Harding and Port Shepstone, and intended for use in the event of Pietermaritzburg being cut off."

"A large number of additional men are required at this very moment. The number of military telegrams is exceedingly great, and the work in connection with the war takes up the whole time of a very large number of men." Mr. French explained that they were anxious to get as many good men as possible, and that there was no fear as to openings in the future, for Johannesburg and Pretoria alone would, when re-opened to business under normal conditions, need a staff of five hundred.

"Although," said Mr. French, "the Colonial Post Office trains every suitable lad it can obtain, and has at present one hundred and fifty in its schools, this supply is not nearly sufficient to provide for the wants of the country." Mr. French explained that the Cape Colony Post Office not only acted as the recruiting ground for all the telegraphic services of South Africa, but was now being very heavily drained of its men by the military authorities, who were always asking for further assistance. The war had also taken away their men in a more direct manner, ninety-eight having

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volunteered for service immediately on the outbreak of hostilities. The offices in the areas under martial law had been kept open day and night, which had necessarily involved the strengthening of the staffs. At De Aar, for instance, thirty-six men were now required, in place of the twelve who were formerly sufficient. The larger offices had also been open day and night since the commencement of the war, and had had their staffs augmented.

The Cape Post Office alone had "imported" two hundred men to fill vacancies incurred by others having joined the Military Railway Service, or the Military Postal and Telegraphic Services of the Orange River Colony and the Transvaal. But they were still very short-handed, and all over the country men were working considerably beyond the normal hours, the sick list in consequence being a very heavy one.

Our representative gathered that the men required by the Cape Post Office were those who had seen from three to five years' service in England, and who could pass medical and qualifying examinations before going out. The rates of pay, we understand, are £120 per year for men with three years' English service, £132 10s. for four years, and £145 for five years, with annual increments and promotions from class to class, until a salary of £320 per annum is attained. It should be remembered, however, that there are certain deductions, including 4 per cent. for a Widows' and Pension Fund. In some parts, such as Griqualand West, where living is dear, there are extra allowances of about £50 per year for married and £25 for single men. Applications in this connection are made in London to Sir William Preece, Consulting Engineer of the Cape Colony. Mr. French explained that the English Post Office had been very good in the matter of finding men for South Africa, but that the British authorities were now hard driven themselves to keep up their own staffs, and had of late been unable to offer assistance. In fact the Cape during the past year had to get eighty men from Australia.

It should be noted that there is little or no opening for lady Post Office clerks in Cape Colony, only a few being employed locally in some of the towns. What are wanted are men capable of working long-distance wires, and any such applying to Sir William Preece may be fairly certain of success. It should be noted that, as the British Postal authorities will not at present allow their men to "transfer" to Cape Colony, any who go out cannot take with them, as formerly, the credit of their English service for the purpose of pensions.

Apropos of the above, the following from the Natal Witness is of interest:

"The Railway Department in this Colony can scarcely be taken seriously in its offer of employment to men from the home service at salaries of £10 and £11 a month. Yet such is the inducement held out to applicants and advertised in several of the English newspapers. At the present time the cost of board and lodging alone would account for the whole of such salaries, though doubtless the conditions now are abnormal. However, there are many factors which will tend to maintain the cost of living, and, in the most favorable circumstances, the position of the railway employé will not be a happy one. When artisans in the mines can earn £1 a day, it is doubtful whether the public departments are wise in offering salaries so much below the standard rates, unless they are willing to accept boys fresh from school.

"The precedent of low salaries is also being followed by the Telegraph Department, though the conditions are better, and apply to men drawn from the Home Service only. Without any knowledge of the cost of living in this country, or the conditions which obtain, a number of operators have signed agreements at salaries of £15 a month with passage paid. But as the average rate of pay for such work is about £25 a month, it is very probable that on arrival in the Transvaal the new men will repudiate their contracts and leave the service for commercial life."

Crossed Wires.

A story is told of a mysterious interference with messages on the wires between Kansas City and Denver. The interruption was variable. At last it was discovered that a young cowherd on the prairie had driven spikes into a telegraph pole, climbed it, and, placing a piece of board across the wires, had secured a sightly lookout station from which to watch the cattle as they grazed. The board was often left there, and in a rain became wet enough to cause a short circuit of the wires on which it rested.

Another story is to the effect that last Fall there was trouble on the wires north of London, England. Tests were at once made, and the difficulty was located a few miles north of Peterborough. A lineman was sent on his bicycle, and found a dead snake four feet long, which had been thrown up over the wires by boys. The snake's body was causing a short circuit and interrupting the messages of the world's metropolis.

The official report of the proceedings of the fifth annual convention of the International Association of Municipal Electricians, held at Pittsburg, Pa., on September 25-27, 1900, has made its appearance, and is being sent out gratuitously with the compliments of the society. In its more than 200 well-printed pages, the volume recites the full programme of the very instructive and delightful meeting referred to, and those who were there and partook of the generous hospitality of the occasion, a recollection that will remain vivid in the minds of many, will be glad to read in detail the experiences of that memorable visit. The volume is profusely illustrated, and familiar faces will be recognized on many of its pages.

The telegraph poles along the Savannah & Statesboro Railway, in Georgia, are growing. They are made of cypress, and must have been planted with the roots. They are sprouting at the top, and serve a double purpose. They are shade trees as well as a support for the wires.

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To Our Friends.

FOR MORE THAN EIGHTEEN YEARS TELEGRAPH AGE has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other, and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. **THEY HAVE BEEN INVALUABLE TO THE ACTIVE OPERATOR AS A PRACTICAL AID IN HIS DAILY EMPLOYMENT.** The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth more than the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, the quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of TELEGRAPH AGE have come to be regarded as works of reference. They will increase in value as time goes by.

THE PROGRESSIVE CHARACTER of the paper itself is generally recognized, and its influence and high standing in all telegraphic and allied electrical circles is freely acknowledged.

CONDUCTED BY EXPERT TELEGRAPHERS, graduates themselves from the key, their training and sympathies put them in close touch with the conditions and needs of the craft still engaged in receiving and sending the dots and dashes.

THE SUBSTANTIAL ENCOURAGEMENT received in the past has already given TELEGRAPH AGE a wide circulation. And this has steadily grown. Yet the field is constantly expanding. Considering the variety, extent and character of the important matter the paper is now offering in all of its departments, so thoroughly meeting the requirements of up-to-date telegraphic information, technical and general, this journal should be an indispensable factor, not only in every telegraph office in the United States, Canada and Mexico, including those of the railroad, the police-telegraph and fire-alarm systems, but to every individual telegrapher as well. To the upbuilding of this larger circulation, the accomplishment of which means as much to the subscribers as to the publisher, because affording the guarantee of a still further improved paper, we ask the active co-operation of our friends everywhere.

TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call attention to this matter? A sample copy will be sent free to any address on application.

Address, remitting by express or post-office money order, draft or check,

J. B. TALTAVALL,

THE TELEGRAPH AGE,

253 BROADWAY, - NEW YORK, U. S. A.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

PHILADELPHIA, PA., POSTAL.

Valentines, sentimental, humorous and "respectfully referreds," were floating around. One of the latter class was resurrected from oblivion and turned over by Chief Operator C. A. Stimpson, to Mr. Charles Knapp, now electrical instructor at the Girard College, with the accompanying: "Statement please; why did you omit the time?" The message referred to bore the date of the 13th day of the month in the year of 1870.

We were favored by a visit from Mr. and Mrs. Gingrich, from Harrisburg.

Mr. J. T. Owen has returned from a long absence in the South and West, in time to sub for Mr. Thomas Poppert, who was a sufferer from the grip. Shortly after his return, Mr. Poppert was assigned the first Atlantic City local, on account of his good work there last season. Atlantic City business has already begun to boom. Lent, there, is a very busy season, and the hotel offices do a thriving trade.

Mr. James L. Barnum, from a down-town branch office, has been transferred to Atlantic City.

Mr. "New Papa" was asked, "Did you go to the Philopatrian's ball last night?" "No," was the reply, "we had a 'bawl' of our own all night."

An operator outside of Philadelphia insisted on sending it: "What ave clunces did you here from purtie here answer." After considerable persuasion, he was prevailed upon to make it: "What are chances? Did you hear from party here? Answer."

The well-known and popular receiving clerk, Mr. E. A. Burns, has just taken a life partner. We extend our best wishes for his future happiness.

Manager W. L. Stanger, of the South Front street office, has just resumed his duties, after a painful experience with an immense carbuncle.

Wire thieves were very active on our lines near West Chester, and removed about 25 sections of copper wire. Prompt action on the part of the linemen soon restored the service.

Apparatus from the supply department has been received and set up, giving us five additional quad sets, to supply the increasing demands of business and leased wire service.

A large 100 wire cable has been laid in the underground ducts from the main office to the broker district, in order to relieve the congested condition of the loops running to the branches, newspaper and broker offices.

Mr. W. H. Duckett is a new arrival.

Over in Camden, the hustling qualities of Manager Auerbach are satisfactorily proven by the way in which business has increased.

CHICAGO, ILL., WESTERN UNION.

An operator was sending a message on Lincoln's ninety-second birthday, when the operator at the receiving end opened his key to remark he thought Lincoln dead.

Mr. J. W. Miller returned from an illness of several months' duration, February 11. He is looking more like the Miller of old, and the long rest has done its work.

Mr. William Brennan has been absent on a sick leave.

Mr. J. B. Kennedy has lost his little boy. Much sympathy is expressed for him. The burial took place at Omaha, Neb.

Miss Thompson has been quite sick with grip. During her absence her place was filled by Mr. O. B. Sims.

The body of Mr. C. E. Sherwood, late of the signal corps, who died in Cuba of yellow fever some months ago, has been reinterred in Illinois. His dying request to his brother, that he be buried at Kenosha, Wis., could not be fulfilled, as the State authorities of Wisconsin refused to allow the body to be interred there, so it was brought to Illinois.

Miss Gogan, of city lines, and Fred Case were united in marriage last week.

Mr. W. T. O. White is reported very ill at home.

Mr. Harry Austin is confined to the house with a severe sprain of the back.

Chief Operator Fry, of Grand Rapids, Mich., was a recent visitor.

OTTAWA, ONT., GT. N'WESTERN TEL. CO.

The Dominion Parliament of Canada opened on February 7, and found this company's office at the Government house fully equipped for the occasion. The report averages 100,000 words daily, which is handled by the experts of the profession. Though a famine is prevailing in this country for operators, the manager has secured the services of the following, who took part in the speed tournaments which occurred in this country a short time ago:

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Days—Bud. Putnam, as chief, with Messrs. St.-Jacques, Burns, Geo. Thomas and Jake Kavanagh.

Nights—Col. Marshall, as chief, with Messrs. Geo. Moss, Christopher McLaughlin and Robert Robinson.

The Canadian press, which is handled at this office during the session, is neatly executed by Phillip Chapman, for the benefit of the members of the House of Commons.

KANSAS CITY, MO., POSTAL.

Kansas City is the headquarters of Mr. G. E. Paine, superintendent of the third district, western division. Mr. S. H. Mudge is chief clerk. The personnel of the office is as follows: Mr. A. B. Richards, manager; L. M. Edwards, cashier; W. C. Morche, collector; H. L. Rhodes, day delivery clerk; C. Wood, night delivery clerk; W. Meinhardt, assistant delivery clerk; Miss K. Minsch, receiving clerk; Miss B. Bales, assistant receiving clerk; Miss Lena Van Camp, bookkeeper; Miss E. Wood, assistant bookkeeper.

The operating force as at present constituted is: B. F. Rommell, chief operator; Charles Falk, night chief; T. W. Ingram, assistant day chief; Bryant Fields, all night chief; G. C. Sperry, repeater chief on Logan leased San Francisco-Chicago wire; Geo. S. Palmer, repeater chief on New York-San Francisco and Chicago-San Francisco duplexes. Operators: M. H. McConaha and Washington Summers on first Chicago bonus wire; L. B. Tobin and Clyde Edwards, first St. Louis bonus wire; C. C. Holloway on west wires; Claude Reed, city circuits; Mrs. Alice Beery, Denver; Joseph Ingram, St. Louis commercial news department; J. H. Sprague, north wires; C. G. Keeler, Chicago, nights; John Hall, St. Louis, nights; Oscar Lander, G. E. Whitaker, Ernest Kaapcke and some half dozen extra men, all around; check boys, Robert Maupin and C. V. McNulty.

"Star" office: W. L. Moore, assisted by Messrs. Tobin and Lander on Saturday night, and Mr. Boyden, days.

"Times" office: E. B. Boyden. Messrs. Moore and Tobin help out at the Times during the sessions of Kansas and Missouri legislatures, which has caused special business to be quite active of late.

Mr. Lander has an outside assignment at a broker's office.

Stock yards branch: M. Swartz, manager; W. J. McKenzie, operator.

Board of Trade: H. Morlan, manager; Harry Hendricks and Arthur Braun, operators.

Office, broker district: H. C. Hill, manager; Vincent Thornton, operator.

Office, commission house district: Louis Lesem, manager.

Dry goods district branch: Miss Ella Mahaney.

At the Armour Packing Company, which uses the Postal wires, F. J. Dikes is manager of telegraph department, with operators E. W. Peck, J. D. Dickinson, J. C. Dobel and B. Ocker.

Swift & Company: E. W. Page, manager, Asher Bumgartner, operator.

Cudahy Packing Company: Mrs. H. E. Daniels.

Baltimore Hotel: Miss M. H. McGinnis, days; Miss Leora Colburn, nights.

Midland Hotel: Miss Helen Huegson, days; Miss Maude Mitchell, nights.

Coates House: Miss O. B. Jones, days; Miss Gill, nights.

Construction Department: J. J. Lynch is general foreman; Thomas W. Curphey, city foreman, with Linemen Edward Manning, Thomas Gowan and C. L. Lord. Arthur Kent is dynamo man.

Mr. G. E. Whittaker has resigned to accept a position with a broker.

Mr. George S. Palmer, repeater chief on the overland duplexes, has gone to Denver to act as chief operator during the illness of Chief J. B. Coggins at that point. Night Chief Falk and All Night Chief Fields will fill in Mr. Palmer's time while he is away.

BALTIMORE, MD., NOTES.

The tenth annual meeting of the Telegraphers' Mutual Aid Association was held February 6. The president's report showed that there was now in bank the sum of $1,016.60, as against $833.84 a year ago, and that the total benefits paid during the year amounted to $409.25. The present membership is 110, five less than a year ago. The following officers were elected for the year 1901: A. K. V. Hull, president; J. W. Hyman, vice-president; A. Grape, treasurer; H. F. Meister, secretary. Directors: S. T. Shutt, A. Gentry, E. S. Anderson, Fred Miller, J. C. Hawkins, A. K. V. Hull, H. F. Meister. Auditing committee: S. T. Shutt, William Taylor, J. C. Wagner. Examiners: F. W. Ganger, H. C. Greene.

LOS ANGELES, CAL., POSTAL.

Business is booming. The average crop is being harvested, and the shippers are doing their usual amount of telegraphing. The hotels are crowded to their utmost capacity with Eastern tourists, who send letters by telegraph.

The personnel of this office is made up as follows: R. R. Haynes, manager; W. J. Wallis, chief operator, days; C. Merrell, assistant chief operator, days; Charles Lewis, night chief operator. Day force: Mrs. Hall and Messrs. Kubel, McIntosh, Nathaniel Firmen. Night force: William Firmen; Louis Hellman, extra operator.

LOS ANGELES, CAL., WESTERN UNION.

Business has increased to proportions unprecedented, and the force employed is the largest in the history of the office.

Two quads to San Francisco are kept hot all day, besides a duplex to Chicago, one to El Paso and Denver, with an increasing overflow.

A number of new arrivals from the East and San Francisco have been employed, and still the force seems to be too small to reduce the overtime.

The hotels are full of tourists, and the rapid development of the oil business is the only solution for the sudden increase in business.

CHICAGO, ILL., POSTAL.

"Wallie" Lincoln has been made late night chief, succeeding H. G. Samuels, who has taken a position with a prominent grain brokerage firm. A. E. Wilder, a young man of much promise, who has been working the Washington wire, days, for some

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time, secures the position of assistant chief of the Southwestern division, made vacant by the transfer of S. J. Thomas to the position of assistant in the New York division.

John C. Duffy, who has been quite ill for a month, has returned to his duties again, and everybody is glad to see him once more.

Business is quite slow at present, and the 9:15 split men "ask off" quite early these nights.

PHILADELPHIA, PA., WESTERN UNION.

Owing to the critical and probably fatal illness of his aged mother, Mr. D. C. Shaw was suddenly called to his home recently at Bath, Me.

Mr. E. C. Abrams, well known to the fraternity at large, has resigned as sporting editor of the North American, and is again at his old post as day editor for The Associated Press, vice Mr. Samuel Warnock, resigned, to accept a position on the reportorial staff of the Press.

Mr. Robert Atkinson is the proud father of a boy.

Mr. J. E. Torpey, of the Philadelphia, Reading and Pottsville Telegraph Company staff, has been transferred to the main office, Twelfth and Market streets. Mr. William Darren is the new man here.

Since the military has relinquished control of the telegraph lines in Porto Rico, C. F. Happersett, who was in the United States Signal Service, and who is well known here, has been made manager of the San Juan main office. Mr. Happersett writes very glowingly of his future prosperity, and his friends here wish him success.

Don't forget the Aid Society's progressive euchre, hop and banquet on April 10.

CINCINNATI, OHIO, POSTAL.

Manager E. W. Collins, of Cleveland, and Mr. W. L. Truesdell, of Columbus, stopped over in this city for a couple of days, on their way to Chicago.

Mr. O. B. Vasche has resigned, to accept a position with the Western Union.

Mr. George A. Stulz resigned lately, to take a position with a broker.

Mr. James E. Neville has been promoted to be traffic chief, vice G. A. Stulz, resigned.

Arrivals: J. H. Carroll, of the Postal, Lima, Ohio; Mr. Harry Brown, of the Western Union, Hamilton, Ohio, and Mr. Joseph Chuck, of the Western Union, this city.

Mr. Joseph Ewers has been assigned to the 206 West Sixth street branch, vice Mr. John Segger, transferred to the main office.

Mr. Guy S. Warren, of the cashier's office, Chicago, spent a day here before going to Lexington, Ky., where he was married to Miss Katherine McCreary Bronston. The marriage was one of the most brilliant affairs Lexington has seen.

Mr. P. H. Conroy, former chief clerk to Superintendent Conger, is now our Chicago auditor and inspector.

ST. LOUIS, MO., WESTERN UNION.

The latest arrivals are the Misses Anna Dean, Tillie Seeger, Elsie Tanner, and Messrs. Leon Dille and T. J. McCarthy. The latter left here about a year ago for the West, where he sought and found some relief for weak lungs.

Mr. Augustus Bloom, who, until about a year ago worked here, died in St. Louis of consumption, February 11.

An order for two gross of Carrie Nation "hatchets" passed through St. Louis recently.

Mr. Louis Schofield, our chief clerk, was confined to his home for several days during the latter part of January with an attack of lumbago. Mr. Joseph Holle filled his place very nicely.

Mr. E. Howard, manager of the Memphis, Tenn., Western Union office, was a visitor here on January 22.

Thirteen dollars was received here by Mr. J. J. Lane, from Mr. E. W. H. Cogley, of The Associated Press, New York, for the Mortimer D. Shaw fund, a full statement of the disposition of which fund will appear in the March 16th issue of TELEGRAPH AGE. Peculiarly enough, a like amount was received from the St. Louis Postal Company's employes. Many thanks are due to Mr. Cogley and the New York boys, and also to Mr. Edward Altemus and the Postal boys, for their generous contributions to this fund. Mr. Shaw's remains were taken to Sumner, Ill., January 25, and re-interred there, under the direction of Mr. Alexander Frazier, of this office.

NEW ORLEANS, LA., WESTERN UNION.

The recent Carnival here was the grandest ever known. The weather was perfect, and everybody appeared to be happy. Great crowds were present. Among the visitors were: J. M. Stephens and wife, Atlanta, Ga.; J. B. Taltavall, New York; F. C. Annett, Chicago; Mrs. Julia Quarles and Mrs. Stewart, Scooba, Miss.; Miss Estelle Meriwether, daughter of the late Superintendent Meriwether, Atlanta, Ga.; Mr. Fountain, manager Western Union, New Iberia, La.; Miss Isabelle Weinberg, Galveston, Texas; Mr. Le Roy Griffin, Montgomery, Ala.; Misses Katie and Lulu Madison, and Mr. and Mrs. O. A. Baker, Ocean Springs, Miss.; J. W. Bradley, Hattiesburg, Miss.; Miss Katherine Rohling, Galveston, Texas; Miss Eleanor Roy, Donaldsonville, La.; Miss Nettie Bonny, Franklin, La., en route to Los Angeles, Cal.; Manager Newton and wife, San Antonio, Texas; Mrs. W. H. Hunter, Minden, La.; Mrs. Charles A. Kicke and sister, Galveston,

Beware of Ointments for Catarrh that Contain Mercury,

as mercury will surely destroy the sense of smell and completely derange the whole system when entering it through the mucous surfaces. Such articles should never be used except on prescriptions from reputable physicians, as the damage they will do is tenfold to the good you can possibly derive from them. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, O., contains no mercury, and is taken internally, acting directly upon the blood and mucous surfaces of the system. In buying Hall's Catarrh Cure be sure you get the genuine. It is taken internally, and made in Toledo, Ohio, by F. J. Cheney & Co. Testimonials free.

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Texas; Willie Hess, Atlanta, Ga.; Victor Crooker, Memphis, Tenn.; Mrs. C. H. Haight and daughter.

Credit is due Messrs. Vidal, French and Elliott for the beautiful Carnival weather. These gentlemen, who look after the signal circuits, called on the local Weather Department, and had it thoroughly understood with that gentleman that there was to be nothing but perfect weather in honor of the thousands of strangers.

BOSTON, MASS., POSTAL.

Night Chief Operator C. J. Foley, has the sympathy of his many friends in the death of Mrs. Foley, which occurred February 16. Mrs. Foley had been a sufferer for a long time, and her death was not unexpected.

Mr. E. Dooner, formerly a check at the main office, has been promoted to be operator at the Devonshire building.

Mr. H. P. Ruffee, who has been ill for a few weeks, has returned to duty.

Mr. E. E. Wolfe, in charge of the Herald office nights, is also back again, after a short attack of the grip.

Messrs. Frank C. and Charles Gilfillan, formerly with this company, but now managers of broker offices in Connecticut, were in town on Washington's birthday for a few days of recreation.

Mr. John D. Shoemaker is now with Jackson & Curtis in the Stock Exchange, Bangs & Co., his former employers, having gone out of business.

Mr. H. L. Fishacher, from a broker firm, is a recent addition to our force.

NEW YORK, POSTAL.

Mr. O. H. Davidson has returned to duty after a three weeks' illness with bronchitis.

Mr. E. A. Goshert, of the Philadelphia bonus wire, resigned, to accept a position with The Associated Press.

Messrs. Thomas Flynn, John Downey and William Collins have resigned, to engage in business elsewhere.

Mr. A. M. Routt has been assigned to the Chicago bonus wire.

Mr. J. E. Pucci has been assigned to the newspaper local wires.

The health of the employes is generally much improved at the present time, very few being away on account of illness.

Mr. H. E. Wilson, manager of the messenger receiving and delivery departments of the Postal, for 253 Broadway, and branches, has resigned, to take effect March 1, to engage in the restaurant business. Mr. Wilson rose from the messenger ranks to the position of manager of the departments named by his ability and faithful performance of duty. He was six years in the sugar district, seven years at 151 Front street, two years at 1260 Broadway, and three years at 253 Broadway. He has the best wishes of all his Postal friends in his new enterprise.

Business is unusually good, considering that February is considered the dull month.

Mr. P. A. Casey has been assigned from the split trick to the regular night force.

Mr. Earl A. Ramsay has been transferred to the 7 a. m. trick.

Mr. William Black was recently transferred from the 8 a. m. to the 9:30 a. m. trick.

Messrs. Egan and Goodrich have been assigned to the Buffalo bonus wire.

Mr. W. C. Wooten has been transferred from the Philadelphia day bonus wire to the same wire nights.

Mr. E. M. Clowes has been transferred from the split trick to the regular night force.

Mr. Joseph Terrell has resigned, to accept a position in the telegraph department of the American Tin Plate Co., this city.

The death of the infant son of Mr. and Mrs. J. H. Havice, on February 12, has awakened an expression of general sympathy throughout the force.

The Postal branch at 274 Columbus avenue, corner of Seventy-fourth street, is under the management of Mr. Edward LeSeur, a veteran in the Postal service, having served seven years at the Consolidated Exchange, two years at the Barrett House, and seven years at the 274 Columbus avenue office, he being its first and only manager. Mr. Emil Michelfelder is in charge nights.

Mr. H. E. Wilson, formerly manager of the messenger department, Postal Telegraph-Cable Company, has opened a restaurant at 52 Park Place, in connection with Mr. P. F. McGann, a man of long experience as a caterer, under the firm name of Wilson & McGann. (Adv.)

NEW YORK, WESTERN UNION.

Mr. Edward Mesler, president of the Telegraphers' Aid Society, recently remarked regarding its condition: "Mr. William J. Quinn, the secretary, and myself have been kept busy this winter promoting the affairs of this society. It is in an excellent condition, having a membership of about 1,400, showing a gain of 119 new members since the last election." Considerable interest is being revived in the coming election.

Mr. William Calvert has been absent over a month, owing to sickness. There is but little improvement in his condition.

Mr. Perry Irish has been absent during the past two weeks, also on account of illness.

Mr. James O'Donell, formerly of this office, is now doing duty in China, as Sergeant of the United States Signal Corps.

A typewriter of a peculiar pattern, needing repairs, was sent from "195" to a repairman. On its return, the man informed the owner that it was a wonder. He found two rats imprisoned in it on opening his shop.

Messrs. Irving Youman and Samuel Abrahams were appointed as operators at 1053 Third avenue, vice Messrs. Purcell and Rath, resigned.

Mr. John M. Casey, formerly of this office, and who left here November 23, is now working at Denver, Col.

Excellent photographs, heavily mounted, of Brooklyn bridge and vicinity, 11 x 14 inches, can be had of Albert E. Sink, 195 Broadway, New York, for 60 cents in stamps or coin. (Adv.)

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Any fifty-cent piece of music mailed eighteen cents. Rusticana, Anchored, Calvary, Palms, Flower Song, ten cents each. Anything at less than half publisher's price. I will sell you a good piano for one dollar per week, from $35 up. B. L. Brannan, 195 Broadway, New York. (Adv.)

Typewriters expressed or sent to our shop, repaired or rebuilt at lowest prices for operators. Cylinders, ribbons, at reduced prices; machines bought, sold and rented. Wall & Butler, 57 Dey street, New York. (Adv.)

AUGUSTA, GA., WESTERN UNION.

Eugene W. Hudson, for a number of years an operator here, died at Apex, N. C., his home, February 22, in the twenty-sixth year of his age. He was a fine fellow, highly esteemed, and the Augusta force sent a handsome floral design as a testimonial of affection on the day of the funeral.

A daughter was born to Mr. and Mrs. George W. Hammell on February 4.

Regarding Telegraphers.

A correspondent who addresses a note to the Lowell (Mass.) Sun, requesting certain facts regarding the position of the average telegraph operator, the telegraph operator for that journal, Mr. C. F. Whitney, replies as follows:

The average salary of a telegraph operator is $80 per month; ranging from $30 for a railroad telegrapher to $125 per month for a "Press" operator. It requires at least a year's hard study and constant practice to become even proficient enough to receive words and simple sentences, as well as send. After that it requires still more practice in order to develop quickness of thought and a good memory, for telegraphy relies almost wholly on the memory. Besides this, a quick and plain penmanship, as well as experience as a typewriter operator is necessary. The telegraph companies prefer operators who can use a typewriter, and in large offices will not engage any one who cannot use one. The operator must furnish his own typewriting machine also. In the press service the typewriter is absolutely necessary, because of the great speed in which the telegraphic characters are sent over the wires, and also because of a system of abbreviations which reduces all words to an average of three letters, which is used in order to get as much news as possible to the newspapers, and in as short a time as possible. When it is considered that 10,000 words must be disposed of within seven hours, you can figure how many words an hour is sent. At night it is even faster, an average of 12,000 words for the same number of hours. This branch of telegraphy is only attained by the most expert and experienced telegraphers, those who have been long in the business, and is therefore the highest salaried.

Women telegraphers, if they are capable of the same class of work as men, receive the same salary, but there are few women in the press service.

It is usually difficult to obtain a practical telegraphic education, owing to the many technicalities which can only be obtained by learning the business in a telegraph office, and such positions are scarce. So-called telegraph schools, while they teach the theory and give an idea of the practice, are not a good investment for the time or money, as graduates from these schools are not looked upon with favor by officials of the telegraph companies; and if they learn that the applicant is a graduate of one of these schools they generally dismiss the thought of engaging him. And even if a graduate is engaged, he generally finds that there are lots of little points which he has to learn and which the school never mentioned. The best age to begin the study, however, is between eighteen and twenty-one years, as the mind at that time is more quick to grasp and retain. It is a clean but very confining position.

Berliner Patent Case Decision.

Judge Brown, of the United States Circuit Court, at Boston, Mass., February 27, decided against the American Bell Telephone Company in the famous Berliner patent case. The suits were the Bell company against the National Telephone Manufacturing Company and others, and the same against the Century Telephone Company, brought to restrain respondents from selling, using or making telephones or telephonic apparatus with the microphone attachment, and to account to the Bell company for past use, manufacture and sales upon the ground that such use, manufacture or sale was an infringement of patent.

The cases were argued before Judge Brown a year and a half ago, and as they related to the same patent—the microphone—were put in together and were tried as if they were one case.

The Berliner patent has been considered one of the most important held by the Bell company, and it does not expire until November 17, 1908. The patent is the same one that has been before the courts in the case of the United States against the Bell Telephone Company, where it was held that the patent was not invalid on account of delay at the Patent Office.

The whole case turns upon the validity of this patent, the defense having set up, among other allegations, the invalidity of the patent, its lack of invention, anticipation and non-patentability.

It is understood that an appeal will be made from the decision, and that the case will be carried to the United States Supreme Court upon this appeal.

T. M. B. Association.—Assessment No. 376 has been levied to meet the claims arising from the deaths of Frank R. Steele, at San Francisco, Cal.; William H. Weller, at La Porte, Ind.; Mrs. Lizzie H. Strong, at Plymouth, Mass.; James L. Fisher, at Millard, Mo., and Charles P. Dwight, at Toronto, Ont.

A bill compelling all telegraph, telephone and electric light companies to place their wires in underground subways in the cities of the first and second classes in the State of New York, has been introduced in the Assembly.

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Coal and Cables.

Capt. George O. Squier, of the United States Signal Corps, has recently pointed out in the National Geographic Magazine that the story of the Spanish-American war is largely one of "coal and cables." He has brought out the little known fact that Admiral Cervera's failure to receive at Martinique two cable messages from Spain, informing him of a coal supply near at hand, and giving him permission to return to Spain at once, changed the whole history of the contest. Cervera's return to Spain would have caused a land attack upon Havana, operations upon the coast of Spain, and similar undertakings.

While the American action in cutting the cables of neutral nations was at first deemed in some quarters a violation of international rights, it is now admitted that where these lines are the means of communication of a belligerent nation, such action is allowable and defensible, according to the law of nations. Hence, as Captain Squier points out, has come the feeling that in the future cable stations must be fortified and vigorously guarded from naval attack, and every effort made to prevent the grappling and cutting of cables near shore.

Evidences appear to multiply that there is good ground for the report published recently regarding the intention of the Canadian Government to nationalize the Canadian telegraph and telephone systems. The report is most insistent that negotiations are already well advanced looking to the acquisition of the Great Northwestern Telegraph system, the Canadian connection of the Western Union.

Professor Slaby, of the Technische Hochschule, Berlin, Germany, says that he expects to revolutionize telegraphy if he is successful in applying his etheric system, which he calls spark telegraphy, to the present system of transmission by wire. He says that thousands of telegrams could then be transmitted simultaneously by the same wire, but that the immediate future does not promise an improvement in the cost of conduction.

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Readers of the TELEGRAPH AGE are referred to the advertisement of the Montauk Cable Company on page two of the front cover. (Adv.)



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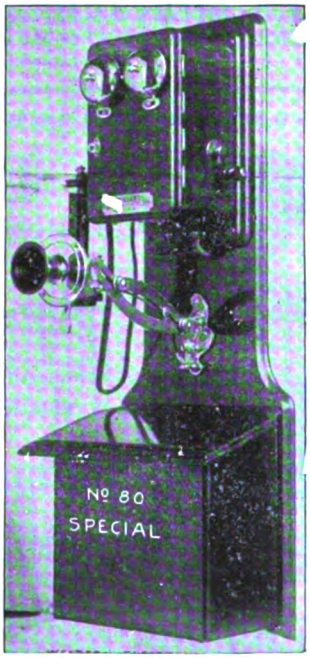
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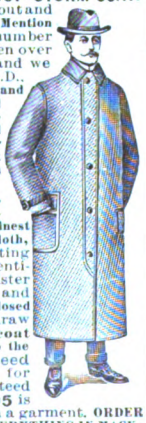
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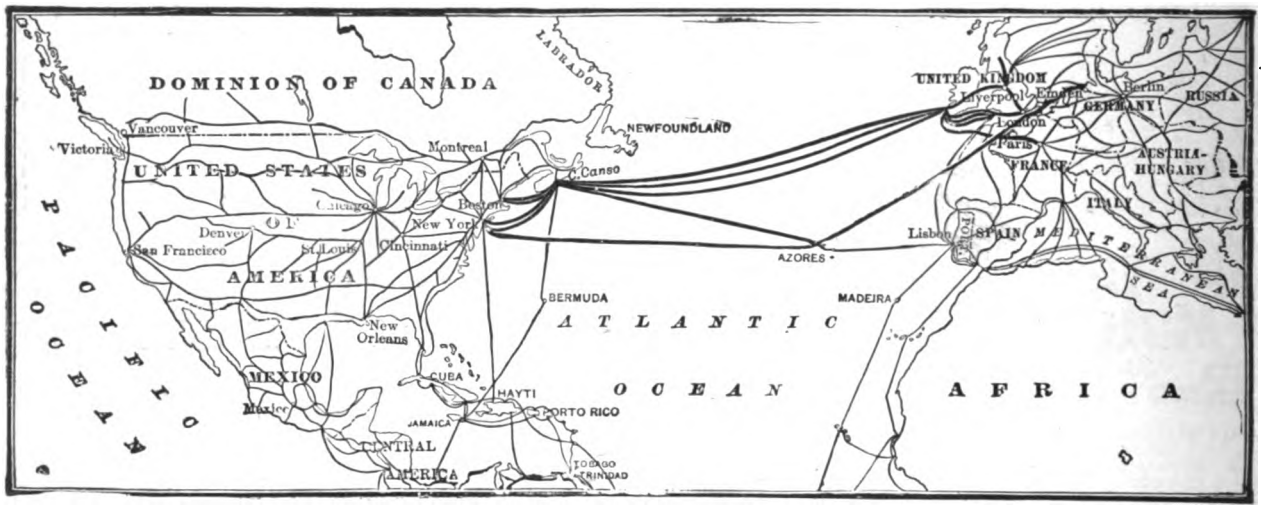
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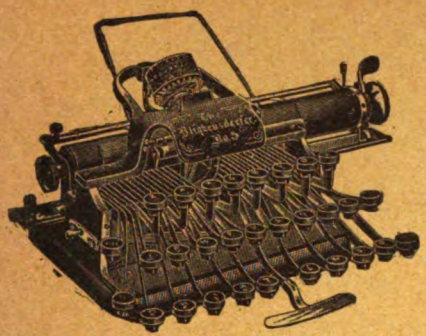
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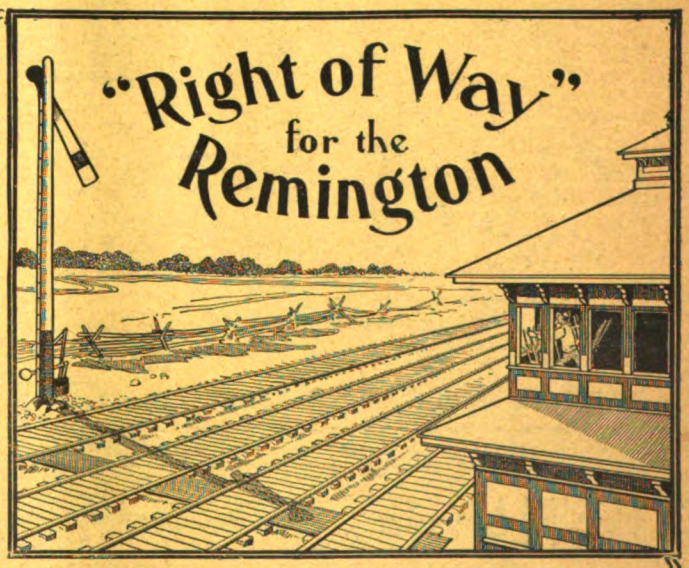
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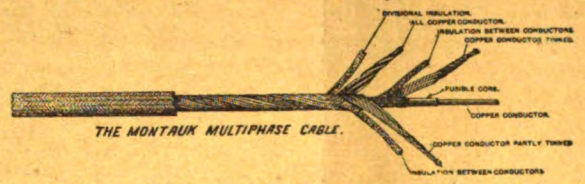
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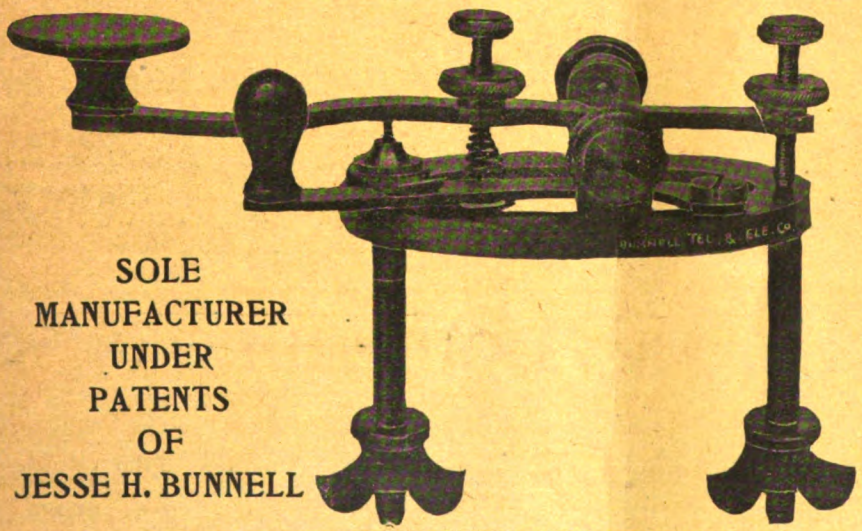
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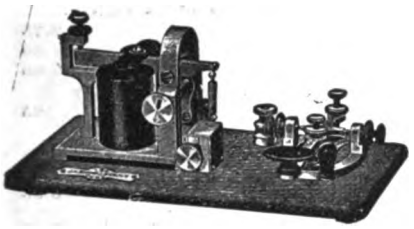
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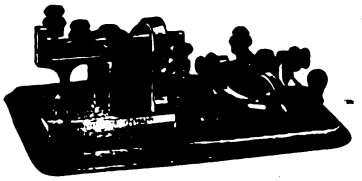
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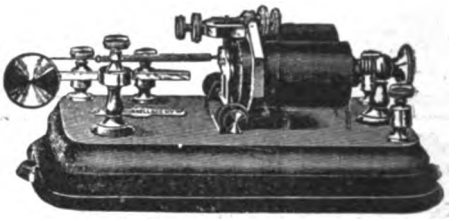
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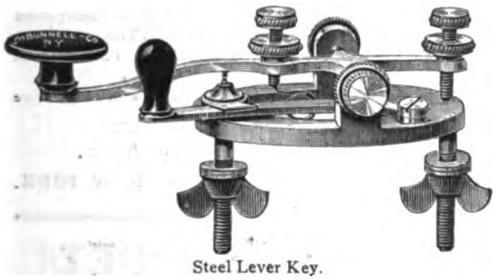
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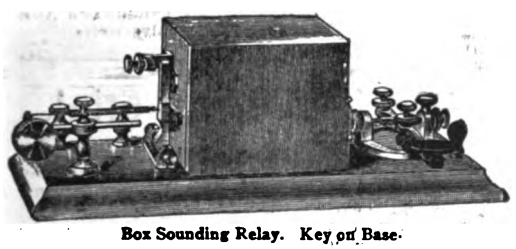
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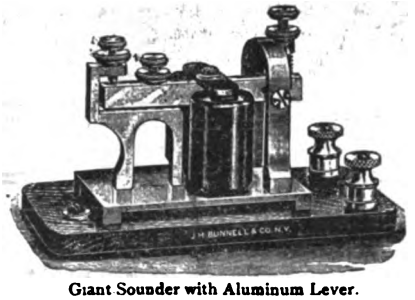
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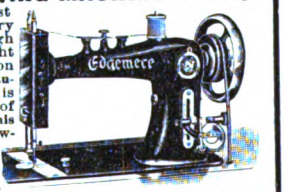
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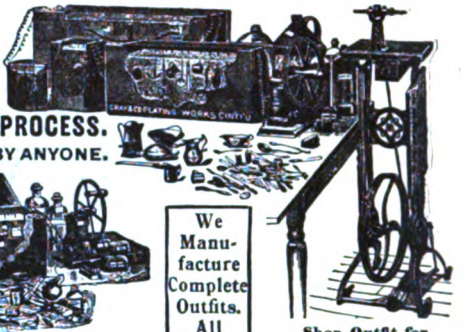
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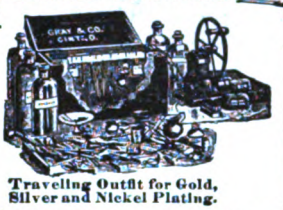


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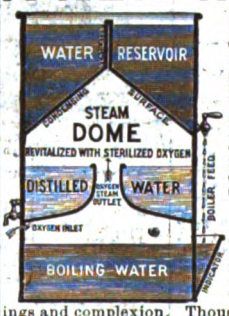
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THE TELEGRAPH AGE.

No. 6. NEW YORK, MARCH 16, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

The Roberson Quadruplex.

Notwithstanding the fact that a description of the Roberson quadruplex has appeared in this and other journals since its invention four years ago, the general impression held by laymen and many others concerning the principal features of the apparatus and the actuating principle of the device is quite erroneous. The mistaken idea seems to prevail that Mr. Roberson has at last solved the problem of constructing a quadruplex consisting of "two polar duplexes," or, in other words, of having been able to substitute a polarized relay and a polechanger on the "common" side for the present style neutral relay and transmitter.

As a matter of fact, he has aimed at nothing of the kind. Strictly speaking; he employs neither polechanger, neutral, nor polarized relays, as we understand their present functions, in his outfit, but a combination, or rather a modification of all three instruments.

We can, therefore, preface a description of his quadruplex system with the statement that neither side is actuated on the principle of a polar duplex nor yet like the neutral side of the Edison quadruplex. Two separate Stearns differential duplexes, with relays having polarized cores, would be a more appropriate comparison, as there is no "short end" current in Roberson's arrangement to cut down the full value of the current received; nor can one side interfere with the other, each half of the quadruplex being independent of the other.

By means of a large horseshoe-shaped permanent magnet attached to the core of an ordinary differential neutral relay, he obtains a very sensitive instrument, which, with his system, enables him to work the quadruplex "four cornered" in weather which ordinarily destroys the usefulness of a Stearns duplex and the neutral side of our present quadruplex apparatus.

The real purpose of the permanent magnet, however, is to furnish a working margin for the relay by utilizing the initial magnetism in the horseshoe alternately *with* and *against* the magnetizing energy due to the electric current traversing the coils of the instrument.

To understand how this is brought about the reader should know that the strength with which a magnet will "pull" an armature toward it is in proportion to the square of the number of magnetic lines of force which traverse its iron core. Thus, if a current of electricity flowing through the coils of a magnet induces, say, ten lines of force in the iron, the "pull" due to that source alone will be represented by the square of 10, which is 100. If, however, the iron contains an initial number of lines, as it must when it is a permanent magnet, the pull will be equal to the square of the sums of the two forces when their direction is *alike*, and by their *difference* when in opposition.

Assuming, then, that ten lines of force also represent the value of the initial magnetism in the magnetic circuit from the permanent magnet, the pull on the armature due to this source alone will likewise be equal to the square of 10, or 100. From this it follows that in such a circuit, when these two magnetizing forces are in like direction, the the pull on the armature will be equal to the square of 10+10=20, or 400, giving a working margin of 300. On the other hand, when the two forces oppose, one neutralizes the other, and there is no magnetism developed in the cores.

These figures do not represent the actual proportions employed, but serve for the purpose of illustrating the principle by which the relay is actuated when an alternating current is employed.

It is plain, then, that in order to get two duplexes out of the one circuit, it is simply necessary to so set the polarity of the initial magnetism in the respective relay cores that a positive incoming pulse will augment one of the instruments to a maximum degree, and a negative impulse the other. It is to this extent only that the receiving instruments employed in this system may be termed polarized relays.

Two transmitters—one for each polarity of the dynamo—cause the proper impulses to be delivered to the respective relays at the distant end of the circuit in the usual way, and as each relay can only respond to its assigned direction of current, and there can be no difference in the value of the two polarities generated in the armature of one dynamo, it follows that there can be no difference in the working efficiency of the two sides of the quadruplex, other conditions being equal; nor

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can one side interfere with the other, because both the negative and the positive impulse of one machine cannot possibly be sent over the wire at exactly the same instant.

Now, in order to arrange a quadruplex system embracing the ideas which led to the invention, Mr. Roberson employs a regular alternating current dynamo with collector rings specially constructed and arranged for the purpose.

The details of this machine and a diagram of the quadruplex apparatus will appear in the following issue of this journal.

(*To be continued.*)

Recent Telegraph Patents.

A patent for an automatic copying telegraph, No. 668,248, has been issued to Ignatius Zabriski, of Milwaukee, Wis.

Business Notices.

The Standard Underground Cable Co., of Pittsburg, Pa., announce that they have established an office at Boston, Mass. It is located in the Tremont Building, at Tremont and Beacon streets, that city, and is in charge of Mr. Atlee B. Saurman, formerly associated with the New York office.

Part five of "The Ericsson Series," the most interesting number thus far issued of this little publication, has made its appearance. It is full of information regarding the telephone, and of the kind everybody wants to know everything about. This will of course create an active demand for the booklet, which may be had free simply for the written request addressed to the Ericsson Telephone Co., 296 Broadway, New York. A page insert shows a fine view of the Ericsson multiple switchboard, lately installed at Pittsburg, Kan. A large number of these switchboards are now in use in the West and elsewhere.

Miscellaneous Items.

Mr. A. S. Ayres, formerly manager of The United Press office, New York, and for the past three years manager of the Publishers' Press Association, Washington, D. C., recently resigned his position to enter the employ of a broker's firm at Cincinnati, O.

Mr. Paul W. Harner, for eleven years with the Pennsylvania and Reading Telegraph Company at Pottsville, Pa., has resigned to accept a position in the telegraph department presided over by Mr. R. C. Luther, general superintendent of the Philadelphia and Reading Coal and Iron Company at the same place.

Mr. Jeff. W. Hayes, of Portland, Ore., the ex-telegrapher, and well known throughout the country as a versatile writer of stories relating to the telegraph, has opened what he terms the "Telegraph Cigar and News Stand" at 266 Stark street, Portland, that State. Telegraphers everywhere, especially those who have read his interesting book of sketches, "Tales of the Sierras," will recognize in this member of the fraternity, who lost his eyesight, a brave man who has met his misfortune courageously, and will wish him well.

The New York Division of the Order of Railroad Telegraphers will give their first annual ball at New Eckford Hall, Greenpoint, Borough of Brooklyn, New York, on Tuesday evening, April 16. An invitation is extended to commercial operators. The committee of arrangements is made up as follows: F. M. Capach, chairman; George M. Hilley, Edward Collins, Thomas J. Stack and William McAndrews.

Hampton Roads and vicinity is noted for its fine oysters. Of this fact the publisher of TELEGRAPH AGE is now competent and abundantly willing to testify, for the sample of these delicious bivalves recently sent to him by Mr. W. J. Bodell, the old-timer and military telegrapher, now of the quartermaster's department, Fortress Monroe, was an argumentative object lesson at once convincing and satisfactory. We also understand that similar gifts were sent to Mr. John Brant, secretary of the Old Time Telegraph Association, and Mr. E. E. Brannin, chief operator in the New York Western Union office.

Mr. C. H. Bristol, general superintendent of construction of the Western Union Telegraph Co., Chicago, is the inventor of a stump pulling machine. This device has been recently tried in pulling out of the ground and rock the stumps of telegraph poles, and it has been pronounced a great success. Recent trials in such work have been conducted by Mr. I. N. Miller, superintendent of the Western Union Telegraph Company, Cincinnati, O., and Mr. George L. Lang, superintendent of the Queen and Crescent Railway Co., at Lexington, Ky., and the machine is stated to have accomplished its work in a very expeditious and satisfactory manner.

Among the telegraph officials who attended the recent Mardi Gras carnival at New Orleans were J. M. Stephens, superintendent of the Western Union Telegraph Company at Atlanta, Ga.; Mr. J. L. Newton, manager of the Western Union Telegraph Company at San Antonio, Tex.; Mr. S. A. Duncan, assistant general superintendent of the Postal Telegraph-Cable Company, Atlanta, Ga., and Mr. C. F. Annett, assistant superintendent of telegraph of the Illinois Central Railway Company, Chicago, Ill. The latter gentleman was accompanied by his son, Charles F. Annett, Jr., who is an attache of the electrical department of the same company. Mr. W. A. Porteous, manager of the Postal Telegraph-Cable Company, and Mr. J. R. Terhune, manager of the Western Union Telegraph Company at New Orleans, were kept unusually busy entertaining visiting telegraph people.

Mr. G. G. Hadley, of New York, a prominent telegrapher a quarter of a century ago, was in Cincinnati, O., recently, when he took occasion to call upon and renew an acquaintance with Mr. W. J. Murphy, the general manager of the Queen and Crescent Railroad, another old-timer, whom he

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had not seen for thirty-five years. Mr. Hadley, in referring to Mr. Murphy, said: "We worked together when boys as telegraph operators for the Erie Road at Susquehanna, Pa., and I taught his two younger brothers telegraphy. The station was burned out there, and we had our office in a box car on the side of the road for some time. I began as a telegraph operator at Polono Summit, on the Erie Road, when twelve years of age. The only place to board was an inn on the mountain top. The woods and roads were infested with rattlesnakes, and when I shut up the office at night in summer I would start on a dead run and never stop until I landed on the steps of the inn, out of breath, for hundreds of times I had heard the bloodcurdling rattle of the venomous reptiles as I sped along. They would come into the warm dust of the road, but I ran so fast they never got a stroke in on me."

Mr. Hadley was informed that he must address his old friend as Colonel Murphy, for such, indeed, he is, that title having been conferred upon him by Governor Bradley, of Kentucky, and once a colonel always one, without variation or shadow of turning.

Mr. Hadley was accompanied by his wife. He had been up to the coal mines secured by the new gigantic coal combine in West Virginia, of which he is general manager.

Obituary.

Mrs. George D. Soule died at her home in Boston, Mass., February 28. For several years she was a Western Union operator at East Whitman, Mass.

John P. Madden, a former telegraph operator, but of late years a politician in New York, died at El Paso Tex., whither he had gone in the hope of recovering his health.

Dr. Mayo G. Smith, who was associated with Professor Morse in constructing the first telegraph line between Washington and Baltimore, died on February 21 at Colorado Springs, Col., at the age of 85 years.

George D. Field, an old-time Chicago operator, and for the past fifteen years a member of the Chicago Board of Trade, died March 4 at Phœnix, Ariz., whither he went last November for the benefit of his health.

Thomas Howard Reilly, well known in news and telegraph circles, died at his home in Passaic, N. J., on February 28. He was born in England, February 19, 1850. He became early in life an expert operator, entering the employ of the American Telegraph Company as a press operator. In 1876 he was sent by the Western Union Telegraph Company to California to assist in the introduction of the duplex and quadruplex systems of telegraphy on the Pacific coast. He returned to New York the following year and accepted a position with the New England Associated Press. On January 1, 1886, Mr. Reilly was appointed day news agent in New York of that association, which position he held for eleven years. In 1897 he became the New York correspondent of the Boston Transcript and held this position until his death. Mr. Reilly was dignified and reserved in his manner, but highly esteemed for his honorable and upright character. He left a widow and two young children. His funeral on March 2 was attended by many of his New York friends, the staff of the Western Union Company being represented by Messrs. John Brant, Thomas M. Brennan, Edward P. Griffiths, W. T. Kilmartin, William L. Ives, H. W. Sauer, John K. Calvert, Joseph Knittle, J. H. Montgomery, Michael J. O'Leary and L. W. Wingate.

The Late Adolph Hummel.



ADOLPH HUMMEL.

Late Superintendent of the Stock Quotation Telegraph Company, New York, Who Died of Heart Disease on February 16, as Announced in TELEGRAPH AGE, March 1.

Recent New York Visitors.

Mr. A. C. Kaufman, superintendent of the Postal Telegraph-Cable Co., Albany, N. Y.

Mr. W. F. Williams, superintendent of telegraph of the Seaboard Air Line Railway, Portsmouth, Va., and president of the Association of Railway Telegraph Superintendents.

Mr. William E. Conrad, manager of the American Telephone and Telegraph Co. at Troy, N. Y., and formerly chief operator of the Postal Telegraph-Cable Co., Norfolk, Va. He was the guest during his stay in this city of Mr. Philip J. Faulkner, district wire chief of the American Telephone and Telegraph Co., who is also a well-known ex-telegrapher.

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Personal Mention.

Mr. E. J. Nally, general superintendent of the Postal Telegraph-Cable Co., Chicago, Ill., is back again at his office after spending a brief vacation in Florida.

Mr. Charles Cuttriss, electrical engineer of the Commercial Cable Company, New York, sailed for Europe on March 9, where he will spend a well-earned vacation.

Col. Albert B. Chandler, late president, and now chairman, of the board of directors of the Postal Telegraph-Cable Company, New York, is spending a few weeks at Thomasville, Ga.

Col. R. C. Clowry, vice-president and general superintendent of the Western Union Telegraph Company, Chicago, Ill., has returned to his home after a three weeks' business trip to New York city.

Signor Marconi has arrived from Europe. It is said that he expects to meet officials of the equipment bureau of the United States Navy, and that the meeting would perhaps result in some experiments on an American war ship.

Vice-Presidents Thomas F. Clark and J. B. Van Every, together with Superintendent of Tariff William Holmes, all of the Western Union Telegraph Company, New York, were in Washington on March 14 and 15, where they appeared before the Industrial Commission.

Capt. G. O. Squier, U. S. N. Signal Corps, now laying Government cables in the Philippines, contributes a very interesting article on "The Influence of Submarine Cables Upon Military and Naval Supremacy" to the last quarterly issue of the Proceedings of the United States Naval Institute.

It will be noticed elsewhere in this issue that Mr. Charles E. Merritt, cashier of the Commercial Cable Company, New York, a position he has held since its organization, was elected assistant treasurer of the company at the late annual meeting of the stockholders. Mr. Merritt has spent a lifetime in the telegraph and cable service, and no one in the ranks is more worthy of such recognition.

Removal of Cable and Telegraph Offices.

The New York Stock Exchange having purchased the property, No. 8 Broad street, adjoining its premises on the north, occupied by the Anglo-American Telegraph Company, and No. 16 Broad street, on the south side, in which is located the Central Cable office, the Gold and Stock Telegraph Company, the Stock Quotation Telegraph Company and the Western Union Telegraph Company, the removal of the offices of these several companies, which is now going on, has been made necessary. The buildings are to be torn down and a new and enlarged structure is to cover the entire site, extending from No. 8 to No. 18 Broad street, to be devoted to Stock Exchange purposes. When completed, probably about a year hence, the Western Union Telegraph Company, the Central Cable office and the Gold and Stock Telegraph Company will find permanent quarters in the new edifice. Temporary quarters, however, are now being fitted up at 46 Broad street for the accommodation of the Western Union Telegraph Company, the Central Cable office and the Gold and Stock Telegraph Company, and the removal to that location will soon take place. Superintendent M. H. Redding, who is in charge of this busy financial district, will also have his headquarters at this address.

The Stock Exchange will occupy quarters in the Produce Exchange, at the foot of Broadway, during the construction of the new Stock Exchange building, which, when completed, will be one of the finest structures of the kind in the world. All of the cable and telegraph companies will have to open offices on the floor of the temporary stock exchange during the period of reconstruction.

The Stock Quotation Telegraph Company has found permanent offices at No. 54 Broad street, where an entire new ticker service and telegraph equipment will be installed by Mr. John Burry, the electrician of the company, who is superintending the work. The executive offices of this company will also be located here, and elegant rooms are being prepared for the occupancy of President William H. Hurst and for the Secretary and Treasurer, John J. Walsh.

The Anglo-American Telegraph Company, Mr. Charles Trippe, superintendent, will move from its present quarters, No. 8 Broad street, to the new and magnificent Broad-Exchange Building, at Broad street and Exchange place.

New South American Cable Route.

On February 22 a new route for telegraph business was established to Brazil, South America, "via Galveston," Tex. This is, in fact, the reopening of an old route, which was abandoned several years ago. Formerly it was a much used line to points on the Atlantic coast of South America, but of late years this business has been routed via London. This new arrangement has been brought about through the efforts of the Central and South American Telegraph Company, an American corporation, which has also succeeded in having the tariff to South American points reduced from $1.35 to $1 per word. The route via London is still maintained, however, and those who prefer to send their business that way can do so, the tariff being uniform with the "via Galveston" route. Telegrams for Brazil "via Galveston" are transmitted over the land lines of Argentina and Brazil by way of Libres and Uruguayana. The service over these land lines since the opening of this new route, February 22, has been very satisfactory, the average time of transmission between Brazil and New York being under one hour. Besides the Libres route, duplicate lines have been connected with Brazil at three other points.

The European route to Brazil is via New York to London, thence to Lisbon, Madeira and Pernambuco.

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Government Control of Telegraphs and Telephones in England.

It is sometimes urged that better results would follow were the telegraphs of this country in possession of the Government. In Canada, it is asserted, the telegraph and telephone systems will probably soon come under the jurisdiction of the Dominion Government, and the advisability of adopting such a measure has been variously commended by that portion of an uninformed and unthinking press which jumps to the conclusion that because the English Government exercises such control in Great Britain, with a lower rate of tolls, the plan must necessarily be a good one to follow. Judging from results it has been a notoriously bad one. And this view of the situation is maintained by Prof. J. A. Fleming, an English authority, who, in a review of the conditions of the telegraph and telephone as they exist in England, appearing in the current issue of the "Nineteenth Century and After," does not present a flattering picture of electrical enterprise in England. The governmental hand appears to be a blighting one. He says in part:

Now, it is a curious coincidence that just at the dawn of this period of electrical activity—viz., in 1870—the Government of this country set themselves up in business as electricians, and proceeded to create a gigantic Government monopoly in one large department of electrical invention which has exercised a most undoubted control over the the supply and demand for invention in a wide area of electrical work. Prior to 1870 the chief practical use which had been found for the electric current was in the electric telegraph. Public telegraphy was conducted by competing electric telegraph companies covering various areas of the country, just as the various railway companies do at present. Their development created a demand for electircal inventions in telegraphy, and the records of the Patent Office show how prolific were some inventors in supplying the need. The Government of that day thought it right in the public interest to buy up all these companies for a capital sum of £10,000,000, with the object of bringing the benefits of telegraphy within the reach of all. But in order to protect the capital thus invested from injury by competition, they passed acts of Parliament in 1868 and 1869 giving the Post Office exclusive rights, with certain exceptions, to transmit messages and information by electricity when practiced for profit. When the telephone made its appearance in 1877, and telephone exchanges began to be devised in 1879, the question arose whether a telephone was a telegraph within the meaning of the act. The Government telegraph officials feared that their monopoly was threatened; hence, with the assistance of the crown lawyers, they proceeded to stake out a big claim, and to obtain an interpretation of the Telegraph acts, passed to legalize the purchase of the old electric telegraph companies, which was equivalent to an authoritative statement that the Post Office possessed the sole right to transmit intelligence by electrical means in return for payment, not merely as the art was then known, but by all and every method which the wit of man could or might throughout everlasting ages devise. Two judges, not the very strongest who have ever sat upon the bench, gave judgment in this sense against the United Telephone Co. Unfortunately, the case never went to appeal, far less to the House of Lords. The victorious Post Office said to the vanquished telephone company: "Don't let us fight any more. Give us 10 per cent. of your gross receipts and we will give you a license to work your invention."

The story of the relations of the Post Office and the telephone is a long one; some simple facts can only be mentioned here. The 10 per cent. royalty paid by the National Telephone Co. to the Post Office amounted in 1898-1899 to £123,061; in the past year probably to about £130,000. The proper telegraph business of the Post Office is conducted, as is well known, at a loss . . . The total royalty paid by the National Telephone Co. and its predecessors up to September 30, 1900, has been £1,081,490. This has been a tax imposed by the Post Office on a new industry barely 20 years old. When the telephone first made its appearance the technical experts of the Post Office laughed at it as a toy. It was only when they were convinced of its utility by hard facts that they set in motion the legal machinery which enabled them to bring it within the grasp of the Telegraph acts. Yet the claim of the Post Office to finger this million of sovereigns depends only on a single decision in a court of first instance, and has never been confirmed by the higher legal tribunals.

The officials in the Government Telegraph Department were at once exalted into a position of paramount power over all electrical invention in land telegraphy. It is pure waste of time for an inventor to spend days and nights over a telegraphic invention, or invest capital in patenting it, unless he can get it tried, and if it succeeds, market his invention to a purchaser. He is not generally a philanthropist, but is spurred to work by the hope of reward. But in electric telegraphy he can try nothing and market nothing unless he first persuades or pleases the permanent officials of the State Telegraph Department. He has to overcome their inertia, opposition, or it may be ill will, before he can even get a trial of his telegraphic apparatus, and when at last he demonstrates an important advance, he is entirely at their mercy whether it shall be adopted or not, and, if so, what price he shall receive for it. The permanent official in any Government department is not, as a rule, eager to introduce improvements from outside. He loves his departmental routine, his habits of mind are slow, methodical, cautious, and he does not want radical reforms. If there is to be any invention at all, he generally likes it to proceed from himself, doubtless at the expense of the nation, so that he may keep before the public eye, and convince his chiefs that he is a clever and important person. A young man bursting with new ideas does not generally enter the civil service; he prefers the greater freedom—if more risk—of a career outside; hence we should

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hardly expect a state telegraph official to be a prolific and original inventor. The most effective method of afflicting any department of applied science with creeping paralysis is to constitute it a Government monopoly.

Telephone Development.

The general public hardly realizes the interest and expectancy with which those engaged in electrical pursuits look forward to the effects of the decision given in the United States Circuit Court in Boston last week, says the Evening Post, when Judge Brown declared the famous Berliner microphone patent invalid, because both Bell and Edison had done already that which the patent would cover. If the patent had been sustained, it would have extended to 1908 the monopoly which the Bell system has now enjoyed since 1877. According to the language of the Berliner patent, just broken, the Bell Company would still have had control for seven years more of all apparatus of a telephonic nature "adapted to increase or decrease the resistance of the electric circuit by the variation in pressure," and this covers every transmitter of any value yet known to the art.

Although doubtless the Bell officials will try to contest the decision in the Circuit Court of Appeals, not a few of the people interested in the Bell system have grown very tired of being called monopolists, and large numbers of the able men in the old system, who bank on good service, accumulated experience, knowledge of the art, and progressive lowering of charges on a scientific basis, are heartily glad that they fight no longer under a banner of monopoly that was actually a prejudice to their cause. Some of the low rates asked by the independents, however, have been positively absurd, with the result that many of the new concerns have gone to the wall or been bought up.

The annual meeting of the American Telephone and Telegraph Company does not take place until the end of this month, so that exact figures as to the system cannot be given, but they can be closely approximated. The last annual report showed that in December, 1899, there were 1,580,000 instruments out, whereas last December there were 1,950,000. As each station has two instruments, a receiver and a transmitter, that would mean, if all were in use, a million subscribers, or perhaps slightly less, as many have over one set. According to the report quoted, there were 1,239 Bell exchanges, 1,187 branch offices, 509,000 miles of circuit on poles, and 489,000 miles under ground, 25,741 employes, and, rather curiously, only 632,946 stations. The discrepancy between the last figure and the calculation just given above would indicate that some of the sub-companies had a great many unused sets of instruments thrown back on their hands, probably on account of competition. This is confirmed by the fact that the net output of instruments for 1900 was only 372,311, whereas in 1899 it was 455,255, a proof that some influence restraining growth was at work. The gross for all 1900 appears to have been only 20,000 instruments more than in the previous year. It may be added that the Bell system carries about two billion conversations a year at rates varying from 1 to 9 cents, and that the total expenditure for construction showed up in the vicinity of $140,000,000, to which apparently should be added $20,000,000 for the long-distance system.

If one is to accept the figures of Judge Thomas, the president of the Independent Telephone Association of the United States, the opposition musters already 1,500,000 subscribers, in some five or six thousand companies or coöperative concerns. There are authentic lists in New York containing the names of 5,000 such companies, and they are growing rapidly as to size and number. It would be unreasonable to assume a capitalization on the same heavy basis as the Bell system, for the bulk of the work is much cheaper, but allowing it only two-thirds as much per subscriber, a total is arrived at of over $300,000,000 as the telephone investment in this country. Experts have estimated a figure of $400,000,000 on a 5 per cent. return. The two billion messages of the Bell system alone, at only three cents each, would yield $60,000,000 a year, and that, at 60 per cent. for operation, is $24,000,000 net, or 6 per cent. on the four hundred millions, leaving the independent work and capital wholly out of sight. Judge Thomas has stated that, while there are now two and one-half million subscribers here, seven and one-half million stations could be maintained at reasonable prices on the existing basis of population, and he believes that figure can now be reached in five years. In other words, by 1905 the telephone investment in this country will easily have passed a billion dollars.

The Slaby System of Wireless Duplex Telegraphy.

From an ill-understood curiosity wireless telegraphy seems at last to have become an important and valuable branch of electrical science, says the Scientific American. Much of the credit for this evolution is due to Prof. Slaby, of Charlottenburg, and to his indefatigable collaborator, Count Arco, both of whom have systematically investigated the phenomena of the Hertzian waves and formulated laws by which these phenomena can be explained. As a result of their labors, the uncertainty and whimsicality of wireless telegraphy have disappeared. Much that was formerly considered indispensable in the ethereal transmission of electrical waves has been proven unnecessary, and even disadvantageous.

The balloon at the upper end of the transmitting wire, supposed to serve the purpose of increasing the capacity; the peculiar plates at the receiving station, formed like butterfly wings, and likewise designed to increase the capacity; the careful insulation of the receiving wire from the earth; and other details of the old system have been rudely thrown aside. Nothing more is heard of the law that the distance to which messages can be transmitted is proportional to the square of the length of the transmitting and receiving wires. That there is a definite relation between distance and length of wire or height of mast may well be assumed; but that relation, whatever it may be, plays no very important part in

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Slaby's system, since the tension to which the coherer is subjected is augmented by means different from those hitherto known.

The waves sent forth by a transmitter loop are augmented by a condenser. An induction coil is connected with the upper end of the loop, and is so wound that it permits the passage of low-frequency currents, but checks the high-frequency currents generated by the discharge of the condenser. At the moment of discharge the loop acts as a single verticle wire. By varying the nature of the induction-coil and the condenser, waves of any length can be sent forth. At a lecture delivered before the German Emperor, waves varying in length from 140 to 600 meters were utilized. In direct opposition to Marconi, Slaby grounds his receiving wire. An ordinary lightning rod is used instead of a mast. If the length of the receiving-wire be exactly one-fourth the wave length, a node is formed at the connecting point with the earth, and the maximum amplitude of the alternating tension appears at the upper end. Evidently the coherer should be attached to the point of greatest amplitude; but such an arrangement is impossible in practice. The difficulty is very simply and ingeniously overcome by connecting with the receiving-wire at the earth node a horizontal auxiliary wire of equal length. At the free end of this horizontal wire the wave-amplitude is equal to that of the upper end of the main wire. To the free end of this auxiliary wire the coherer is attached. The auxiliary wire need not be extended in a straight line; it can be wound to form a coil.

If the main receiving-wire, which is usually a lightning rod, and which cannot, therefore, be readily lengthened and shortened, be subjected to the action of electrical waves of greater length than the wire can receive, it is necessary merely to lengthen the auxiliary wire in order to receive the message. In this manner a nodal point can be formed in the auxiliary wire, so that the receiving wire may be subjetced to electrical impulses by which it would not otherwise be influenced. The auxiliary wire in Slaby's system is of the utmost importance; for by its use the receiving apparatus will be affected only by certain waves. Thus Prof. Slaby has succeeded in overcoming one of the most glaring deficiencies in wireless telegraphy—the impossibility of secretly transmitting a message to one station alone.

In order to increase the effect of the waves, a peculiarly wound induction coil is placed in the circuit between the coherer and the auxiliary wire. The coil Prof. Slaby terms a "multiplier." By means of this instrument a trustworthiness and certainty of operation have been attained which are as gratifying as they have been conspicuously lacking in previous methods of ethereal telegraphy.

Not the least interesting feature of Prof. Slaby's invention is the possibility of receiving two messages simultaneously at a single station—an end which has been attained largely by means of the auxiliary wire of variable length already mentioned.

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Annual Meeting of the Commercial Cable Co.

The annual meeting of the shareholders of the Commercial Cable Company was held in New York March 4. The accounts and balance sheet for the fiscal year ending December 31, 1900, were approved. The revenue from the submarine cables and landlines (Postal Telegraph-Cable Company) increased $339,946.65 over the previous year.

Out of the balance to the credit of revenue account there has been set aside a sum of $350,000 as an addition to the reserve fund, an amount of $150,000 as an addition to the fund for insurance of stations, apparatus and repair steamer "Mackay-Bennett" and an amount of $400,000 to reserve for the renewal of landlines.

After providing for all operating expenses and reserves, the balance of net revenue, including the amount brought forward from the previous year, amounts to $2,007,730.18, out of which have been paid interest on bonds and debenture stock ($720,000) and dividends of 8 per cent. on the capital stock ($1,066,664), leaving a balance of $221,066.18 to be carried forward to the present year.

The general reserve fund now amounts to $3,947,232.97, and the insurance fund to $519,409.60.

The share capital of the company was increased from $10,000,000 to $15,000,000, and of the increase $3,333,300 was issued to shareholders at par, to provide for cable extensions. An additional cable was laid between New York and Canso, N. S., and a cable was also laid between the latter place and Fayal, Azores Islands.

There have been added to the Company's landline system 482 miles of poles, 12,693 miles of wire and 62 new offices.

Traffic arrangements were also entered into with the Deutsch Atlantische Telegraphen Gesellschaft (German Atlantic Cable Company).

The public auditors, Messrs. Deloitte, Dever, Griffiths & Co., were re-elected by the shareholders.

The Board of Directors, which was re-elected, is as follows: John W. Mackay, James Gordon Bennett, Right Hon. Lord Strathcona and Mount Royal, G.C.M.G., Gardiner G. Howland, Charles R. Hosmer, Col. William Jay, Thomas Skinner, George G. Ward, Clarence H. Mackay, Sir William C. Van Horne, K.C.M.G., Col. Albert B. Chandler, Edward C. Platt and Dumont Clarke.

The following officers were elected: John W. Mackay, president; George G. Ward, vice-president and general manager; Charles R. Hosmer, vice-president; Albert B. Chandler, vice-president; Clarence H. Mackay, vice-president; Edward C. Platt, treasurer; Charles E. Merritt, assistant treasurer; Albert Beck, secretary, and John O. Stevens, assistant secretary.

The Government cable has been finished to the Island of Jolo, in the Sulu group of the Philippine Islands, and messages are now transmitted to all the southern islands. The cable system now connects Panay, Negros.

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The Field for Telegraph Inventors.

Seemingly an attractive field for young inventors during the last two or three years has been the devising of printing-telegraph systems and apparatus intended to effect great improvements over the present methods of telegraphy.

Discussing the subject opened by a consideration of introducing radical improvements in methods of telegraphy, a prominent telegraph engineer makes some interesting observations in the Western Electrician. "When Morse invented his telegraph key and sounder," said he, "and paved the way for reading by sound, he produced probably the simplest system that could be devised, and a system which has stood the test of years. The country is to-day covered with an army of skilled telegraph operators, and to introduce any one of the many so-called 'revolutionary' telegraph systems that are being put forward would necessitate either the employment of new help or the training of old employes, and this would scarcely be compatible with present conditions. Then, too, the substitution of more complex and necessarily more expensive devices at each telegraph station would mean a very large initial expenditure, and the doubtful advantages gained in the automatic recording of messages and possibly more rapid transmission would be more than offset by the expense of keeping the systems in repair. It would be well for the many inventors who aspire to produce efficient and economical telegraph apparatus and who, as a rule, are unfamiliar with the conditions met with in the operation of a successful telegraph system, to make a thorough study of the situation and seek the advice of experienced telegraphers before they devote their time, money and energy to the perfection of apparatus which in itself may be interesting as a mechanical or electrical contrivance, but which is destined to find no place in the commercial field of telegraphy."

The message sent by direction of Mr. R. T. Brown, manager of the West India and Panama Telegraph Company, London, England, announcing the death of Queen Victoria, was transmitted from the palace at Osborne, Isle of Wight, England, to Georgetown, British Guiana, South America, in twenty-two minutes, a quick piece of work, anticipating considerably the Government message sent by the Secretary of State for the Colonies. The route traversed is a much broken and circuitous one. The colored crowd at Georgetown were lamenting the death of the Queen before the news was known in nine-tenths of the London suburban districts.

DISTRICT MESSENGER COMPANY FORMED.—The Postal Messenger Company has been organized under the laws of the State of New Jersey with a capital of $10,000, with the privilege of conducting messenger service in all States and Territories of the Union. The incorporators are: William H. Baker, Charles P. Bruch and John O. Stevens, of New York. Mr. A. C. Ackerman, of 99 Montgomery street, Jersey City, N. J., is the local agent of the new company.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; price, $1, reduced from $1.50.

"AMERICAN TELEGRAPHY," by William Maver, Jr., enlarged and improved; 600 pages; 475 illustrations; clear, lucid and comprehensive in its treatment of the subject, the ranking work of of its kind, and of high practical value to every telegrapher; bound in cloth; price, $3.50.

"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume, of which but a few copies of the first edition now remain, presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; price, $5.

"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones, 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Commercial Union Telegraph Co.

At its recent annual meeting, held in Portland, Me., the following directors of the Commercial Union Telegraph Co. were elected: William H. Baker, George G. Ward and Edgar C. Bradley, of New York; William Engel, of Bangor, Me.; H. S. Osgood, P. B. Rolfe, F. N. Dow, Albion Little, G. W. Norton and S. L. Larrabee, of Portland.

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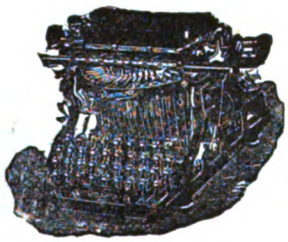
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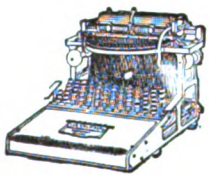


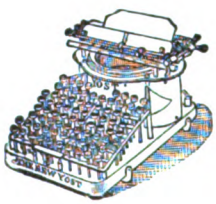
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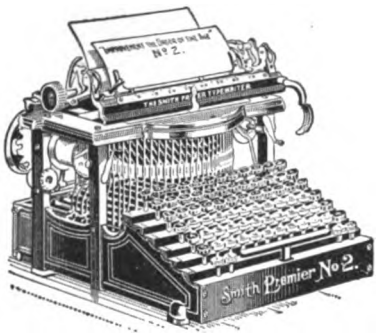
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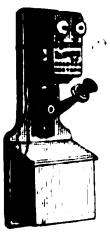
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CHANGES OF ADDRESS.—The address of a subscriber will be changed as often as desired. In ordering a change of address the *old* as well as the *new* address *must* be given.

NEW YORK, March 16, 1901.

As to Modern Business Methods.

The business methods obtaining in telegraph office management, while necessarily more stringent than that pursued in the earlier days, because of its vastly more extended and complex conditions, appears to be the text of some pertinent observations on the part of a telegrapher who writes at length on the topic to TELEGRAPH AGE. He is moved to express himself energetically, and in antagonism to what he believes to be the injustice and greed in many ways displayed by corporate management in dealing with employes. He evidently is an old timer, for he especially instances that if the daily average slip, as now generally employed, had been introduced into a telegraph office twenty-five or thirty years ago, when every operator was at least supposed to be actuated by conscientious motives in the performance of his duty, and who prided himself in doing an honest day's work, it would have been rejected; and further, that a storm of righteous indignation would have permeated the rank and file and swept down upon the luckless company with irresistible fury in the shape of a committee empowered to deal vigorously with the offending officials. While the average slip, cited as a feature of harsh modern management, may be objectionable per se, it is said that times change, and men with them; hence it may be true, as many officials assert, that the men themselves are in part to blame for this and other later day innovations. The standard of avowed conscientiousness, it is claimed, has been lowered, unfortunately, in many ways, thus making the imposition of more strict office measures imperative for the enforcement of necessary discipline. Thus it happens, as in every case where many men collectively are employed, that the good, steady and reliable men, for whom under no circumstances strict rules of government are required, are being punished, if that term may be used, without distinction, and in line with those whose lax conduct caused these obnoxious systems to be introduced.

Yet it is true that when a man is obliged to make affidavit each day, testifying to the amount of business he has handled during that time, it is equivalent to his being informed that he is not and cannot be trusted to transact a reasonable day's work. To many high-minded and sensitive men such requirement is considered an exaction reflecting upon personal integrity and degrading to honorable manhood; that the tendency is to crush out the individuality of the man and reduce him to the level of a mere machine, in which no trust, brotherly love or human feeling is manifest or finds expression. It must be admitted that under such circumstances a state of sullen unrest and despondency is very apt to take the place of aspiration and desire to accomplish good work and be accounted responsible therefor.

An Interesting Opinion.

The opinion of ex-President Chandler, of the Postal Telegraph-Cable Company, that the Government might operate the telegraphs a little more cheaply than the owning corporations, is interesting. It presupposes equally careful management, however, and bases the possibility upon the assumption that the Government would not expect the system to pay dividends. So, while it is interesting, it is pure assumption.

The fact is that Government management usually implies an amount of jobbery and political emolument more than equal to the greed of private possession. Government ownership means monopoly that is absolute. The only restriction upon making the service pay political rewards is the limit of an elastic conscience and the force of public sentiment. The private corporation, on the contrary, is always restrained by the fear of competition, even though it may have gained a practical monopoly.

System of Wireless Telegraphy More Efficient Than Marconi's.

Since last autumn the navy department has suspended the experiments in the employment of wireless telegraphy as a means of communication between naval vessels and between vessels and the shore.

While it is true that Marconi has arrived in the United States, and that he may while here communicate to the navy department some proposition looking to the installation of his own system of telegraphy on our naval vessels, the navy department has not yet engaged him to do so.

Rear Admiral Bradford, the chief of the equipment bureau, has had conferences with some of the most eminent electricians in the United States as to the availability of the wireless telegraphy for naval use. The latest proposition has been broached by the department of agriculture. Secretary Wilson, who, hearing that the navy was casting about for a serviceable system of telegraphy, has written Admiral Bradford to notify him that the agricultural department has been experimenting for some

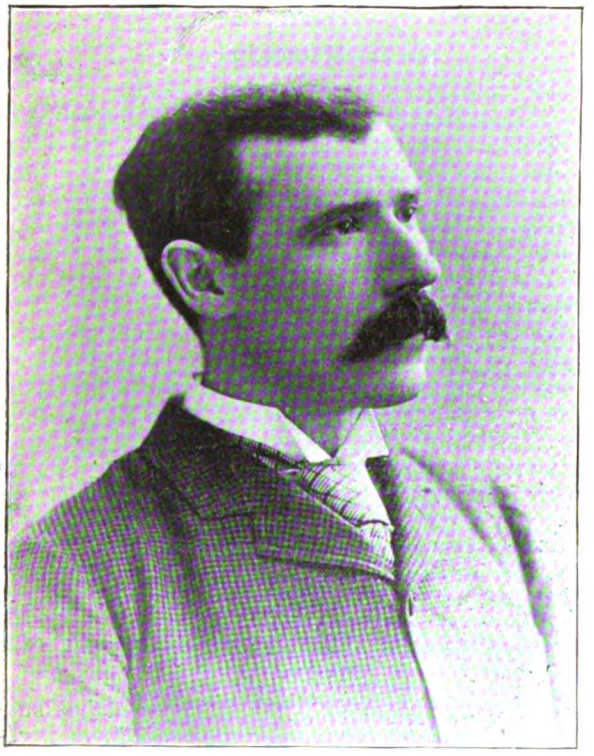
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time with wireless telegraphy, and has attained remarkable results. His experts assert positively that they have evolved a system radically different from Marconi's, and of far greater efficiency.

The outcome will be watched with the greatest interest by all naval men, particularly in view of the announcement that not only Great Britain but Germany and other maritime powers already have ordered the installation of wireless plants in their navies.

A Well-Earned Promotion.

Mr. George Clapperton, who was made a director of the Postal Telegraph-Cable Company, at its annual meeting held in New York on February 26, has made a life study of the telegraph and cable service. Mr. Clapperton was born in 1854, at Ercall Magna, Shropshire, England. He has been



MR. GEORGE CLAPPERTON,
Recently Elected a Director of the Postal Telegraph-Cable Co.

engaged in railway and telegraph work since 1868. He was sent to America by the Direct United States Cable Company in 1874, and was an operator in its service until 1882. He was employed by the Western Union Telegraph Company, at Canso, Nova Scotia, from 1882 until 1884. In the latter year he was appointed superintendent of the Commercial Cable Company, with headquarters at New York, and on January 1, 1896, he was made traffic manager of the entire Commercial Cable Company's system, a position he still retains.

No up-to-date telegrapher can afford to be without TELEGRAPH AGE. Send for a sample copy.

A Bright Young Postal Messenger.

In the Postal office at Jefferson City, Mo., Victor Blume, a messenger boy who is but thirteen years of age, and small of stature, is possessed of qualities that give promise of developing the young beginner into an expert telegraphist. His childish face would not suggest one competent to do almost anything connected with a telegraph office, but his company has handled many thousands of words that would otherwise have gone to the rival company because of this boy's shrewdness and accommodating disposition.

He has worked in the Postal telegraph office about four years. When there was nothing else to do he would work at the key till he mastered the Morse alphabet. He learned to know all about rates and could take charge of messages at the desk, but Manager L. A. Schirmer did not think of utilizing his knowledge of how to send messages until one day when the office was crowded with work. The quick intelligence of the child told him there would be a delay of press messages which were piling in fast that day. He sat down and began to send. That was a year ago, and now the operators in the Kansas City and St. Louis newspaper offices suppose Victor Blume to be a young man whose sending is not quite as rapid as that of more experienced men, but as clear and accurate. The local correspondents utilize him in their work. He goes to the office of the Secretary of State and copies some routine news items, and every day carries them to the office and sends them himself. At a time when other boys are in the ward schools, where he, perhaps, ought to be, this messenger boy is learning the work of correspondent and telegraph operator.

$100 Limit for "Mental Anguish."

The Indiana Appellate Court, says the Western Electrician, in a case brought against the Western Union Telegraph Company, holds that when the basis of an action is mental anguish alone, unaccompanied by any bodily injury, as in case of a negligent failure of the defendant company to deliver a telegram announcing the death of the plaintiff's grandmother and the time of her funeral, there can be no recovery of damages, but the recovery must be limited to such a penalty as is given by statute, which in Indiana is $100. The Indiana Supreme Court has decided the question otherwise (Telegraph Company vs. Reese, 123 Ind., 294), and the Appellate Court has certified its ruling to the Supreme Court with a recommendation that it overrule its former decision.

A merchant named Brown, dealing with the firm of Jones & Co., finding some goods ordered had been shipped over a road other than the route specified in his shipping directions, straightway sent a telegram, collect, to the firm, saying: "Goods shipped by other road contrary to shipping directions. Jones pays the freight." Quick as a flash came a refused payment service along with an answer, collect, saying: "Yes, and Brown pays the telegram."

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IN THE SHADOW OF DEATH A MOTHER PLEADED IN VAIN.

BY CHAS C. BOYD.

She was a little, old, dried-up, stoop-shouldered woman, about 55 years of age. Her once black head of hair was now slightly streaked with gray. One could tell at a glance that she had not been reared in affluence. Almost anybody who has seen the people from the sand hills of South Carolina would have instantly recognized in this pale-faced old woman a typical sandhillian. This class of citizens makes its living principally by cutting up and bundling pine splinters for market. This kindling wood is called "light'ood" and sells for about 2 cents a bundle.

This "light'ood" is taken to town in small carts hauled by an ox, and not infrequently one sees a cow pulling the cart. Those who are so fortunate as to own a cow that will work in harness are considered by their fellow countrymen to be lucky indeed, for the cow does not only the hauling, but also furnishes the milk and butter for the household. It is not an uncommon sight to see a woman in one of these carts perched on a pile of "light-'ood," with a home-made corn cob, or clay pipe in her mouth, and seemingly as contented in her position as is any queen on her throne.

The particular woman in question had not gone to market on this occasion with pine knots to sell, but she had traveled many miles in her little ox cart to Columbia to seek an audience with His Excellency, Governor Evans, to plead for an only son's life. She found the Governor in the executive chamber, where she stated her case and begged for mercy for her darling boy, as only a mother knows how to beg. Her pleadings were in vain, though, for the Governor told her that although he felt sorry for her, he could not interfere, and that the law must take its course; that the son had been tried before a jury of twelve of his peers, and having been found guilty of murder had been sentenced to die on the gallows.

The old woman ceased weeping, dried her eyes, and, bidding the Governor good morning, left the Capitol building.

She had made her last plea and had lost; all hope had vanished. She was resigned to the inevitable. She had done all she could do to save her dear boy.

She walked slowly through the principal business thoroughfare of the capital city, until she reached the front of the Western Union telegraph office, where she could hear the conglomerated sounds of half a hundred telegraph instruments. She halted, looked up at the signboard, a four-sided affair, about 12 feet high, and built around the office pole, which stood on the edge of the sidewalk. Although the old woman's education was very limited, she could not mistake the big white square letters on the electric blue background, and it was not hard for her to make out the words "Telegraph Office."

She had hoped that morning to be able to induce the Governor to send a telegram through this same office to the Sheriff at Winnsboro, granting a respite for her boy. She had also written to the Sheriff that in case the Governor failed to intervene that he (the Sheriff) should send her a telegram when the execution was over. Entering the telegraph office she walked up to the counter and asked the time of day. The polite young man who acted as receiving clerk at the counter informed her that it was 11:45 A. M. The old woman stepped to one side, and stood there like a marble statue, as pale as death. It was not long before the young man who had spoken to the woman began to wonder why she was acting so queer. He asked another employe of the office if he knew what the woman wanted. Of course he could not tell him.

In about five minutes' time the woman appeared once more at the receiving window and asked again what the hour of day was. By this time one of the operators had volunteered to ferret out the mystery, so, stepping to the counter, he asked the old woman if she was expecting a telegram. To this question she replied yes, and at the same time began sobbing. She was then asked if any one was sick, or what the matter could be. It was then that the poor old woman, sobbing aloud, said she was expecting a telegram from Winnsboro; that she had an only son who was condemned to die at the hour of noon. She told how she had raised the boy from babyhood, how she had looked over him through sickness and health; that her husband had died when the boy was small, and that he had been her only comfort, and was all she had to live for. She told how, in a fit of anger, and made mad by drink, he had taken the life of a fellow countryman, and now he must die. She had no money to pay a lawyer's fee. The prosecution had money behind them and secured a verdict of guilty. She told how she had pleaded with the Governor for her boy, and how he had refused to interfere.

The old woman held in her hand a small package, wrapped in soiled newspaper. She had held this package all the while, and those gathered around the poor old creature were curious to know its contents, but out of respect for her sufferings they dared not question her as to the little bundle which she guarded so faithfully.

"Time!" shouted the man at the Washington wire.

By "time" it was meant that it was 11:57 A. M., and that the great clock in Washington was then connected with the telegraph wires, and would, for the next three minutes, strike the seconds on the many wires throughout the country.

The old woman asked why all had become so quiet, and why the sounders were all working as one. She was told that the wires were connected with the observatory in Washington, and that it was then striking 12 o'clock.

The old woman knew then that her boy Fred, the one for whom she had prayed so earnestly that day, was then on the scaffold and that in a few short minutes his soul would take its flight. She knew that there was no one with Fred to comfort him, for he had no relatives other than his mother, who had left him in the hope of saving his life.

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"Twelve o'clock!" cried the man at the great switchboard. The three minutes' striking was over, it was precisely 12 o'clock, noon. Instantly the instruments began their busy hum.

The old woman was weeping bitterly. She knew that in a very short time she would receive the telegram from the Sheriff at Winnsboro telling her all was over.

"Answer Winnsboro," cried some one on the adjoining table.

One of the operators left the old woman, and, going to the wire on which Winnsboro was calling, received the message, which read:

"Your son Fred was hanged at 12 o'clock. Will send body to Blythewood to-night."

The message was taken to the poor old woman, who was still sobbing bitterly. She said she could not read writing, and requested that the contents of the telegram be read to her. This sad act was performed by one of the stout-hearted men of the office, but not without dampened eyes and quivering voice.

The old woman looked up to the papered ceiling above her and uttered a silent prayer. What that prayer was no one ever knew, but suffice to say that she asked God to take Fred into His keeping.

Then turning to the small package which she had placed on the counter while she had clasped her hands before her breast and made the silent prayer, she unwrapped the paper and took from it a long black veil and a pair of home-knit black gloves. Placing the veil over her weather-beaten face, and putting the gloves on her sunburned and scratched hands, she went to the wagon yard, hitched the ox to her little cart, and sitting on an empty tobacco box, she started for the sand hills to meet the corpse of her darling boy Fred.

A True Story.

In New Orleans, in 1889, an operator on the night force was going to his home late one night, or rather early in the morning. Reaching the suburbs, outside of the lighted district, the stillness of the hour and the current of his meditations were suddenly broken by a fierce command to "throw up your hands." As the assailant held a majority position, rendered so by the presentation of a cocked revolver, discretion became the better part of valor and the order was immediately complied with. A search in the right pants pocket of the victim revealed therein but 15 cents and a pocket knife, possessions not excessive, even for a telegrapher. The man with his hands up simply remarked to the would-be robber, who was grumbling because of his ill-luck, to "try the other side."

Darkness had prevented a recognition of the face, but the voice which spoke was familiar, and the highwayman immediately lowered his revolver, handed back the articles taken, and said, "Wo," receiving in reply the significant answer, "Gu," "Wo," "U." The footpad remarked, "I have long since dropped my sign, but I shall look for a job now and sign 'QT' for quit and be a man again." Then he added: "You don't know me, do you, Jackson?" This was answered in the negative. "Do you remember the fellow that signed 'X' when you were working nights at 'BG'?"

Jackson thrust out his hand and said: "Shake, Barton; but how did you ever get into such devilish business as this?"

Barton told of his downfall, bad associates, drink etc., which causing him to lose his position, he had become desperate.

Daylight was now fast approaching, and with a hearty good-by and Barton's promise to let the night's experience prove a lesson to him and to begin life anew, the two men parted, Jackson going home and endeavoring to explain to his wife for his late coming, while Barton struck out for the road leading out of town, throwing his revolver in a pond by the wayside.

Six months had passed and Jackson had almost forgotten the little incident. One day he received a letter from Barton, dated at ———, Texas, stating that he had reformed and was then employed by the Western Union and was beginning to enjoy life once more. He closed by saying that he owed it all to the fact of having tried to rob his old friend, and begged that he might receive full forgiveness, a request which was cheerfully accorded by return mail.

Barton is now a chief dispatcher in the West, while Jackson has passed over the river and sent in his "30."

A LINEMAN'S LAST CLIMB.

BY BEN C. WILKINS.

Phil Denechau was rated one of the most expert linemen of his day; a wiry little Frenchman, strong as an ox and brave as a lion. The element of fear was absolutely foreign to his make-up. The feats he had accomplished on steeple tops and various elevated points would furnish material enough for a good-sized book.

I have known him to climb to the very pinnacle of the village church, stand on one foot and wave his hat to the terrified people below. As a steeple climber he knocked the persimmons from the highest limb, and on a telegraph pole, whether it was twenty feet or one hundred feet tall, he was as much at home as a monkey in a cocoanut tree.

Perhaps his ability found a high rating in my estimation from the fact that we were old-time friends, having attended school together up in old "Wisconse." When our school days were at an end we drifted apart, to meet ten years later in a little town in Iowa, on the Mississippi River, he as lineman and I as operator for the old Pacific & Atlantic Telegraph Co., whose lines extended along the river bank from St. Paul to St. Louis.

Cables were little used on land lines at this time, and where it was necessary to cross the river it was accomplished by the wire being stretched across from the tops of tall poles, or masts. At some points the distance between these poles would be nearly half a mile, consequently there would be considerable slack, and in order to carry the wire above the sky-scraping smokestacks of the big steamers it was necessary to use the tallest poles or masts possible.

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Such was the case at the little town of which I write, the mast at this point being some three feet through at the base, the first section one hundred feet to the top, where cross-trees were attached and another pole, seventy feet long, reared its head into the dizzy heights above.

To stand at its base and look up to where its top seemed to be trailing in the clouds, was appalling—what must it have been to stand at its top and gaze down? But this was one of Denechau's daring feats which he had accomplished more than once. But every dog has his day, and so had Denechau.

The old Mississippi was on its annual June rampage; the water had already risen ten feet and was rapidly nearing the danger line when the slack in the wire would have to be taken up or some of the big steamers would become entangled and carry it down, which would reflect upon Denechau's record, and cause voluminous correspondence with the superintendent's office, and he always dreaded to receive mail bearing that postmark, though he was conscious of performing his duty faithfully and well.

It was high noon; a great bank of fog had drifted down and settled over the bluffs like an ominous pall. The foliage was heavy and dripping with moisture; the mighty river, filled with floating debris, wrangled, roared and rushed along as if maddened with its extra burden, and disappeared in that vast chaotic bank of mist.

Several hundred people had gathered at the spot, as Denechau had given out that after taking up the slack he would stand on his head on the top of the pole, providing the day was calm.

The ascent on the iron steps to the cross-trees was easily and quickly accomplished, where he rested and adjusted his spurs, then upward like a squirrel he ran, and, reaching the top, waved his hat to the crowd below, who responded with a hearty cheer. Suddenly, and without warning, there loomed up in the fog only a few rods away the great black hull of the War Eagle, the fastest and most majestic steamer of the Northern Line, carrying the tallest smokestacks of any packet on the river.

A cry of horror arose, for the crowd had taken in the situation at a glance. Women wrung their hands and cried, children screamed and a shout went up as if from a hundred throats: "C-u-t t-h-e w-i-r-e, c-u-t t-h-e w-i-r-e, t-h-e W-a-r E-a-g-l-e's c-o-m-i-n-g." But Phil, with his back turned toward the steamer, was unconscious of the approaching danger. Nearer, nearer, nearer she came, her great black hull and immense funnels magnified to twice their natural proportions by the heavy background of fog. Her bells sounded, her engines reversed, her huge wheels threw up the white foam like the wind in a cotton field—but too late. You have seen a hickory sapling bent to the ground and suddenly released, or a bow drawn out and the rapid flight of the arrow—there was a straining sound as the wire became entangled in her pipes and drew taut. Over, over, over the pole was drawn until its top must have overlapped its base fully forty feet; there was a sharp metallic twang as the wire parted and the pole with terrific force and rapidity flew into its upright position. There was a feeble cry from aloft—and Denechau shot into eternity as if hurled from a catapult.

A Letter from "Bogy."

The following is an extract from a letter recently received from "Bogy" (Henry A. Bogardus):

"I have been here on a ranch for two months with a friend of mine. It is located forty-five miles from Colorado Springs, fifty-two miles from Denver and four miles from a post-office, and consists of 320 acres. I find plenty to do around the place to keep my blood in circulation, but being up 8,000 feet above the level of the sea, the air is so light I find great difficulty to breathe after the least exertion. I am getting fat as a porpoise and correspondingly lazy, and if I had a bellows to fill my lungs with I would be right in it. Pike's Peak is in plain view, and looks to be about three or four miles distant, but it is forty miles away. A friend of mine (not an operator) met me in Colorado Springs and insisted on my coming here and resting myself, but I think another month will find me moving again for some unknown region. I have a strong inclination to go back to Chicago, but what I want there is more than I know. I will probably spend a couple of weeks in Colorado Springs before I finally decide which way to go. At times I feel like Jacob Just did:

" 'And then, just as the brunt of battle o'er,
And Peace displayed her olive branch once more;
He, like another Cincinnatus, then
Returned content to hold the plow again;
And refused requital, seeking but the charm
Retirement gave him on a country farm.'

"I noticed in recent Chicago chronicles in TELEGRAPH AGE something of W. R. Holligan being superintendent of the Postal. How is that? I supposed the Western Union owned Holligan. Guess I will have to go back there and see about these things."

Repeal of the Telegram Stamp Tax.

The telegram stamp tax of one cent on each message has been repealed, the same to go into effect on the first day of July next. The imposition of this tax, always regarded as of doubtful expediency, has been the cause of no end of annoyance in many telegraph offices, frequently causing delay in the transmission of messages, especially in the smaller towns, where stamps were not always readily procurable. Its repeal will be gladly hailed by managers everywhere.

It is announced that a billiard game by telegraph will probably be played this month. Billiard games by telegraph are a novelty in the sporting world, although long-distance tournaments in chess and some other sports are by no means new.

A subscription to TELEGRAPH AGE is regarded as a good investment.

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Some Messages and Their Senders.

According to a Chicago paper, a nervous old gentleman hurried into the downtown office of one of the big telegraph companies in that city, and rushing up to the counter secured a message blank from the clerk. He gave one swift glance around at the many clicking instruments, the flying messengers and busy operators and then began scribbling down his dispatch. In a few seconds he handed it over to the clark, having absent-mindedly neglected to either write down the address of the person to whom the message was going or to sign his own name at the end of it.

"Who is this message for?" asked the clerk in a rather short tone of voice, as soon as he glanced at the slip of yellow paper.

"It's none of your business," snapped the old gentleman.

"There's no address on it. How am I going to send——"

"Oh, beg your pardon, I wasn't thinking for a second," and the man took the dispatch back and wrote in the address at the top of the page.

The clerk then took the telegram again and read it as he counted the words.

"What is your name?" he asked, as he finished the count.

"What in thunder has that—oh, did I forget to sign my name to the thing? Excuse me," and the name of the sender was added and the message was soon going over the wire.

"We see more kinds of people here in a day than you can find trading at department stores—at least they show more noticeable characteristics," said the superintendent of one of the big central telegraph stations in the heart of the city. "We even have crazy people drop in nearly every day and almost always have plenty of money to pay for the queer messages they write out. Sometimes these messages go over the wire when we have no good reason for stopping them, for of course, if the person has the money and does not manifest very strong symptoms of insanity, we can do nothing. However, if the signs of dementia are pronounced, we send over to the central station and have the police come over and take charge of the unfortunate man or woman.

"Many people do not understand the great secrecy maintained by the telegraph companies and all of their operators. Every telegrapher is under strong obligations never to reveal the contents of any message. I heard of one case in which a telegraph operator learned from the dispatches of an embezzlement that was about to take place, but his obligations as to the secrecy of dispatches rendered it impossible for him to do a thing in the way of revealing the contemplated crime, which was finally committed. A detective once came into my office and demanded to see a message which had been sent a moment before by a woman. She was suspected of some crime or of being a party to it, and he had been shadowing her. He flashed his star and demanded that I show him the message. I declined and he asked me how I knew that the woman was not a murderess, etc. I told him it made no difference who or what she was, I could not show him the dispatch under any circumstances and that ended the debate.

"I have been in this business so long and studied message senders so many years that I have been able to divide our customers into six different classes. They are wolves, hyenas, jackals, coyotes, foxes and good, faithful Newfoundland dogs. I think nearly all of our customers can be put in one or the other of those six different classes. The wolf is the overbearing, domineering citizen who has no regard for the rights of others. He comes in here with great bluster and issues orders as if he owned all of the telegraph wires in the world and they were being operated exclusively for his especial benefit and the tone of his dispatches are perfectly in harmony with this spirit.

"The hyena hogs everything he can get off the telegraph company and off the people he is telegraphing to. He writes and rewrites his dispatch about twenty times and crowds it down to ten words at the risk of having it misunderstood. The jackal always tries to play both sides of the game. From his messages you can see that he is trying his level best to get himself in a position where he will come out on top, no matter how things go. He is apt to be treacherous, but perhaps not so much so as the coyote, who is a contemptible sneak of the lowest class. No skullduggery is too low for this last gentleman. He comes in and makes all kinds of inquiries as to the details of sending and receiving messages. He has some crooked scheme that he wants to work through the agency of the telegraph company, and he thinks if he can find out all of the details of handling messages he will find no difficulty in accomplishing his ends. The fox is the smooth, clever citizen, who uses a great deal of flattery and cajolery in his efforts to win your good graces to such an extent that he can secure some favor from you which you have no right to confer on any one. The dog is the good, generous, faithful friend, who telegraphs assistance whenever he finds his friends in need and who also sends long, liberal telegrams of congratulation or condolence at the proper time. He is as honest as the day is long and would rather do favors for other people than receive them himself."

The new catalogue, just issued, of the Smith Premier Typewriter Co., of Syracuse, N. Y., is fully up to the standard of artistic excellence which that company has established for itself in all of its printed productions. Green and orange colored inks are used on the inside pages with a pleasing blending, and the design, including that of the front cover, is marked by originality. The machine is pictured as a whole, all working parts are also separately shown, and every detail of construction explained. Users of this instrument, as well as intending buyers, will find much of interest in this catalogue, which may be obtained for the written request.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for a sample.

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To Our Friends.

FOR MORE THAN EIGHTEEN YEARS TELEGRAPH AGE has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other, and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. **THEY HAVE BEEN INVALUABLE TO THE ACTIVE OPERATOR AS A PRACTICAL AID IN HIS DAILY EMPLOYMENT.** The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth more than the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, the quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of TELEGRAPH AGE have come to be regarded as works of reference. They will increase in value as time goes by.

THE PROGRESSIVE CHARACTER of the paper itself is generally recognized, and its influence and high standing in all telegraphic and allied electrical circles is freely acknowledged.

CONDUCTED BY EXPERT TELEGRAPHERS, graduates themselves from the key, their training and sympathies put them in close touch with the conditions and needs of the craft still engaged in receiving and sending the dots and dashes.

THE SUBSTANTIAL ENCOURAGEMENT received in the past has already given TELEGRAPH AGE a wide circulation. And this has steadily grown. Yet the field is constantly expanding. Considering the variety, extent and character of the important matter the paper is now offering in all of its departments, so thoroughly meeting the requirements of up-to-date telegraphic information, technical and general, this journal should be an indispensable factor, not only in every telegraph office in the United States, Canada and Mexico, including those of the railroad, the police-telegraph and fire-alarm systems, but to every individual telegrapher as well. To the upbuilding of this larger circulation, the accomplishment of which means as much to the subscribers as to the publisher, because affording the guarantee of a still further improved paper, we ask the active co-operation of our friends everywhere.

TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call attention to this matter? A sample copy will be sent free to any address on application.

Address, remitting by express or post-office money order, draft or check,

J. B. TALTAVALL,

THE TELEGRAPH AGE,

253 BROADWAY, - NEW YORK, U. S. A.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

BALTIMORE, MD., WESTERN UNION.

The second annual meeting of the Telegraphers' Mutual Savings and Purchasing Association was held on February 18 and was largely attended. After transacting routine business, declaring a very satisfactory dividend and electing officers, those present spent a few hours in social enjoyment.

The following officers were elected: President, Samuel T. Shutt; vice-president, William Taylor; recording secretary, F. F. Basye; treasurer, J. C. Hawkins; executive committee, H. G. Montgomery, A. Grape, G. J. Rhein and J. C. Wagner.

Recent changes: J. A. Burt, from extra to regular; Reuben Burman, from main office to Fish Market.

Additions to extra list: J. A. Howard, John Crone and Fred Sigmund.

Being so near Washington, this office always catches some of the inauguration boom. This time it was quite heavy, but business moved very promptly and smoothly.

Recent visitors: Mr. M. W. Hamlin, Western Union manager, Milwaukee, Wis.; Ben Hallenstein, now a merchant of Chicago, and years ago a clerk here; Charles Kimberly, twenty-eight years ago an operator in this office, and since then for twenty-one years a naval paymaster, and Don. Kinney, of the race department, New York.

MONTREAL, QUE., CANADIAN PACIFIC.

The amount of press matter from the Parliament House at Ottawa has been heavy of late, and especially at night. We have a few young machine men, however, on the night staff who are holding their own and turn out excellent copy. Among those who deserve mention are: Thomas Massey, Joseph Flood, C. Gibeau and Robert Bunch.

Mr. W. G. Medley has gone to Sudbury, Ont., to relieve one of the men who is off on sick leave.

Mr. Thomas Greatorex has accepted a position at Holeb, Maine.

Mr. W. Limmer, of the Commercial Cable Co., Hazel Hill, N. S., passed through here en route from Minneapolis, whither he had gone to attend the funeral of his mother.

Mr. Frank Coombs has arrived from South Africa after an absence of over a year. He has been reinstated to his former position and assigned to the first Toronto.

Mr. Frank Spear has accepted a position with Burnett & Co., brokers. Nelson Noble has accepted a similar position with Forget & Co. Mr. John E. Galey replaces the former on The Associated Press wire, and Mr. J. Elmer Poole takes the place of the latter on the third Winnipeg.

Mr. W. T. Robinson, assistant chief operator, has been appointed manager of the Ottawa, Ont., office, vice Mr. H. Bott, who, it is said, will be transferred to this office. Mr. Robinson has already left for Ottawa to assume charge of his new position.

Mr. J. Mitchell is acting day chief, pending the arrival of Mr. Bott.

George Rivet has been promoted to operator, and assigned to the St. James' street ticket office, vice Harry Schraeder, transferred to the main office.

VANCOUVER, B. C., CANADIAN PACIFIC.

Mr. Alexander Laurie, a well-known and popular operator, died here on February 26, of consumption. He worked in Montreal, Winnipeg and Vancouver for a number of years, and was popular among a large number of the fraternity. He leaves a wife and three children, who are fairly well provided for.

A large party of men have left for the north to complete the Government telegraph line to Dawson City. It is expected the line will be finished in about three months.

Mr. Evan Goodfellow has left to accept a position on the Dawson line.

Mr. Edward Burchell has returned from a two months' visit to his old home in Halifax. He brought back a very pretty photograph of the place.

Mr. Charles M. Oliver, who is now manager at Rossland, B. C., paid us a flying visit recently.

HAVANA, CUBA, NOTES.

Sergeant Haughton and Operator Hullfish were detailed recently to the wreck of the Government transport MacPherson, near Matanzas.

We are expecting several first class operators from the States to fill in the vacancies occasioned by transfers and increase of business.

D. J. Crowley, who has been on leave of absence to New York, has resumed work at the Palace.

During the absence of Night Chief Owen, G. M. Stephens has been appointed to fill the vacancy.

Sergeant John C. Wheaton has received his discharge from the army and will now work in the Havana office.

Colonel Dunwoody, chief signal officer, has re-

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turned from a trip to the States, where he had gone presumably in the interest of the telegraph department.

Night Chief Owen was married to Miss Gomez, a Cuban lady of Santa Clara, on March 3, and when he passed through Havana he was the recipient of an appropriate present in token of the fraternal esteem with which he is held by his co-workers in the Havana office.

New lines, incorporating the latest improvements, are being strung in Cuba, displacing the old and worthless wire that did service under the Spanish regime, and which has continued under the American occupation. We soon hope to have a system of telegraphy the efficiency of which cannot be surpassed by that of any country.

Operator Bauder recently relieved Mr. Alleyn in the Western Union cable office here, Mr. Alleyn returning to New Orleans.

Chief Lineman Schmidt will soon embark with 10,000 parrots for the States.

MEMPHIS, TENN., WESTERN UNION.

Our business office here has lately undergone a number of improvements. New railings have been put in and new pneumatic tubes connecting both exchanges, branch offices and business office with the operating room, have been completed. Manager Emmett Howard and Chief F. Ross are doing their utmost to make this an up-to-date office. Col. Fenn, chief electrician, is here superintending the changes.

Mr. Geo. B. Elmore, who has been in charge of the Union and Front branch for several years, has been transferred to the day force, main office. He is succeeded at the branch by Mr. E. A. Roper, late of New Orleans.

Mr. E. F. Walker, our veteran manager of the Cotton Exchange branch, has been confined to his home by a serious illness for the past month, but is now improving and hopes soon to be out.

With the coming of the Lenten season many marriages were in order in this city, and of course the Western Union had to be in line with a most popular wedding. The happy pair were Mr. Victor M. Crooker, our genial traffic chief, and Miss Mollie V. Byrne, formerly a check clerk and later an operator. After the ceremony Mr. and Mrs. Crooker left for New Orleans to attend the Mardi Gras celebration. The couple were hansomely remembered by their friends and fellow employes with a beautiful and costly silver set, and with the wishes of long life, health, wealth and happiness.

Among our late visitors here were Superintendent J. Compton, of Nashville, Tenn., and Mr. J. B. Taltavall, publisher of TELEGRAPH AGE.

DENVER, COL., WESTERN UNION.

Mrs. S. C. Hiliker, who has undergone a very serious operation at St. Joseph's Hospital, is improving. Every one wishes her speedy return to the office, where she has been a familiar figure for the past fourteen years.

Mr. Everett Goodell has returned after a two weeks' attack of grip. Ford Murphy has also had the grip. Mr. F. G. Gargan has been ill with the gout.

Messrs. Pedley and McKay left lately for California. Business being light in Denver, they thought traveling for pleasure would be to their liking. All hope they will soon be permanently located.

New arrivals: Messrs. Casey, from New York, and Alexander, from New Orleans, both with the Western Union.

Mr. J. A. Hogan had that "tired feeling" for three or four days, but has again resumed his old place on the Kansas City local.

Electrician W. N. Fashbaugh, spent several days in Ogden and in looking over the lines between Denver and Ogden.

Mr. Fred Wessel has returned from Kansas City after three months' leave of absence.

Operator Hogan reports the birth of a son February 23.

Mr. Fred J. Martin, who is with a firm of mining brokers, treated the force to candy and cigars upon the birth of a daughter on February 25. Fred is all smiles.

Mr. E. W. Simmons, formerly with the Morgan Brokerage Co., has located in Colorado Springs for the same firm. Mr. Simmons took with him a helpmate, for he and Miss Williams were married upon their arrival at the Springs.

Mr. Wm. Hunter, of The Associated Press force, left for Phœnix recently to permanently locate there. We all hope the change will do him a great deal of good and that he will soon regain his health.

Mr. M. R. Dwyer, who has been with the Western Union Co. in the Equitable Building for the past year, has resigned and accepted a position on the road traveling for a Chicago house.

CHICAGO, ILL., POSTAL.

George L. Durand, chief in the New York division, days, was called to his home in Ohio recently on account of the death of his mother. Much sympathy is expressed for him among his many friends.

Mrs. M. B. Asmussen had a very severe accident a short time ago, from which she is still suffering. During the latter part of February she fell on the icy pavement and injured her back. It is expected she will soon return to her duties, however.

Miss Bertha Boas is nothing if not in the fashion. She has just recovered from the grip.

Miss Alma Hahn has also been quite ill, but has again resumed her duties.

Miss Kathryn Riley, lately from St. Louis, has accepted a position with Joy, Morton & Co. We miss her pleasant smile.

Mrs. Helen Bradley Brockle has left us, after long years of service with the company, resigning March 1.

Miss Nellie Fiske, lately of the Western Union, has been added to the regular force.

Mr. W. G. Phillips, a young man who has developed an aptitude for wire work, has been given the position of "rider" on the San Francisco-New York wires, days.

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PHILADELPHIA, PA., POSTAL.

Signs of the incoming spring boom in business are already manifested. Manager Frank Scott, of the North Front Street branch office, did well in spite of dullness elsewhere; Manager Moffett, of North Third Street, celebrates his prosperity by having the office beautifully renovated. Business at the Bingham House office continues good under the excellent care of Miss Jennie Davis.

Mr. Finan has resigned the management of the Fifth and Market Street office, accepting a better position with the Western Union. He is relieved by Mr. Dowdell, from the Western Union Broad Street Station office. Mr. Mullen, also from the latter place, is now with this company at Third and Chestnut Streets.

Mr. William Madden has relinquished his place on the first New York bonus wire. He has not been enjoying the best of health of late.

On March 6 Mr. William P. Curl was in a retrospective mood, as that date marked the thirtieth year from the time of his opening the prosperous commission office in the Market Street dry goods district. During that time he became temporarily connected in outside commercial business, but soon drifted back to the key, and only a short time ago got away from the district altogether, and is now working a circuit in the main office.

Baseball fever is being developed among the operators, but thus far no team has materialized.

Miss Jennie Melville is looked upon as a reliable standby to serve in the Conshohocken test office when Mr. Greene is called out on line duty. She has been called upon on several occasions lately.

Miss M. V. Hagan is missed from the city department, being detained at home on account of illness.

Chief Operator C. A. Stimpson, has had his location embellished by the installation of a neat cabinet wardrobe and instrument case.

Much sympathy is expressed for our friend, Mr. John Shearer, formerly employed here, who had gone West, hoping to recover failing health. He died aboard the train on his way home.

Doctor John A. Moran is once more in charge at the Philadelphia Press office, vice Daniel Gillespie, who was compelled to resign on account of poor health. Mr. Gillespie has made his home in Denver, Colo., and is doing well.

That "great excitement is caused by little things" was clearly illustrated the other evening when a bat flew into the office, and, being unable to escape, sought rest and safety on one of the ceiling arches. Everybody became very much interested, but a big policeman, attracted by the excitement, proved a mighty force in exterminating the invader.

PHILADELPHIA, PA., WESTERN UNION.

Messrs. Bair, Emanuel, Burns, Gould and Hoffman, of the day force, and Grady, Wineland, Griffin, Wognum and Mattson, of the night force, were sent to Washington to help out during the inaugural rush. They wish to express, through the AGE, their thanks to the officials and operators of the City of Magnificent Distances for courtesies received.

Mr. John P. Ryan, manager of the Second street and Girard avenue office, was married recently to Miss Mary Straubmiller, of this city. The AGE extends congratulations.

Mr. S. S. Peck has resigned as manager of the Bullitt Building office and resumed duty at the main office. Mr. Finan succeeds Mr. Peck.

Mr. Joseph Abdill was sent to Burlington, N. J., during the illness of the manager at that place.

Miss Clara Gregg was absent several days, owing to the death of an aunt.

C. A. Dawson, of Washington, D. C., is a new arrival.

Under the supervision of Mr. I. N. Barto, of this office, the Western Union office at Tyrone, Pa., was recently moved into a more desirable location. The manager, Miss Lilian Antes, is correspondingly proud.

Mr. John Richards, for many years operator at Delaware breakwater for the Maritime Exchange, a gentleman highly esteemed by all who knew him, while laboring under a temporary fit of insanity due to illness, attempted suicide by inhaling gas. Failing in this, he jumped from a second-story window, receiving injuries from which he died shortly after. Mr. Richards was visiting relatives in this city, where he had come for medical treatment, when the fatal spell came upon him.

Manager Hudgins, of 305 Walnut street, was recently laid up with a dislocated ankle.

Night Manager Mr. J. P. MacLoraine has gone to North Carolina, among the pines, where he hopes to recover health and strength which he lost during several months of severe illness. A recent letter from him states he is recovering rapidly.

During the illness of the ticker operator at Atlantic City, N. J., Mr. B. M. Longstroth, of this office, was sent there to help out.

The great event takes place April 10. It is the Aid Society's initial euchre, hop and banquet.

THE ASSOCIATED PRESS NOTES.

New York office: Messrs. E. A. Goshert and H. Graham have been appointed on the night force, the former vice J. H. Harley and the latter vice H. A. Holmsworth, the latter doing extra during the illness of Mr. Waugh.

Mr. G. R. Hill has also been transferred to night service.

Mr. W. L. Waugh, of the New York day force, is confined to his bed in Washington, D. C., by illness.

Mr. E. Wells is working the New York and Albany special wire during the session of the Legislature.

On account of the installation of a central office at Troy, N. Y., Messrs. A. V. Cooper and W. W. Casterline have been relieved. Mr. T. E. Burns, formerly operator at the "Times," has been transferred to night service, and Mr. T. A. Quinn, formerly of the "Press," doing day duty at The Associated Press Office, No. 8 Cronin Building.

C. E. Martin has been appointed to day service

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on the New York State wire, and Mr. A. E. Inglee transferred to the editorial department.

Mr. F. Horstmann has been appointed as day operator at Schenectady, N. Y., vice C. D. Jayne, resigned.

Philadelphia, Pa.: J. J. Sillers, of day force, resigned.

Washington, D. C.: Messrs. W. Russell and C. Wister, extras during Congress, have been relieved.

Mr. W. L. Waugh has been transferred to New York on account of adjournment of Congress.

Austin, Tex.: Mr. W. D. Scott, resigned, has been relieved by Mr. D. G. Morgan.

Waco, Tex.: Mr. Fred. Bontz, resigned, has been relieved by Mr. E. H. Rogers.

ST. LOUIS, MO., WESTERN UNION.

"Dip" McCruden was there; so were the two Joes—Joe Barry and Joe Holle—and the Telegraphers' Ball last month was a decided success, financially and socially. Everybody, apparently, attended, and had a splendid time. Among those present were: The Misses Leola C. Knoth, Fannie Bernstein, Aggie Denny, Anna T. Dean, Kate Walsh, Mamie Lacher, Mamie McHugh, Annie Shevlin, Etta Ostermann, Louise Stegeman, Lenora Murray, Teresa Grimes, Cora Van Dam, Belle Sinclair, Ida Ernesthauser, Ida Beehler, Helen Wetzel, and the Messrs. W. K. Kairn, H. V. Crain, Henry Van Dam, M. D. Crain, Jr., A. Jackson, G. H. Bagot, J. B. Holle, Frank Gorosky, Joseph Gruenfelder, Thomas Grady, T. Mullally, M. J. Cassidy, Henry Gosting, "Dip" McCruden, J. R. Magill, J. R. Barry, A. Steinbach, C. W. Frey, G. A. Baron, W. A. Stallings, W. C. McCain.

Mr. A. M. Harris returned February 26 from his home at St. Thomas, Ont., where he passed a vacation of two weeks.

Miss Lillie Kavanaugh, of the Wheatstone, returned to work February 25, after a three weeks' absence, caused by grip.

Many thanks are due to Mr. J. C. Watts and the New York boys, who recently forwarded $28 through TELEGRAPH AGE to Mr. H. B. Perham, secretary of the Order of Railway Telegraphers, for the M. D. Shaw fund. Mr. Watts stated that more still is coming. This money will apply in defraying the expenses of a headstone to be placed over the grave of the late Mortimer D. Shaw. Such good work has been done in New York and St. Louis for this fund that we wonder could not Chicago, Omaha, Kansas City and some of the other large towns help us. So far there has been received, not including the $28 mentioned above, $125.40. Of this amount $45.95 is on hand after removing the remains to Sumner, Ill., where two sisters of deceased reside, and who will take proper care of the burial ground. A summarized statement of expenditures is as follows: City (St. Louis) charges for exhuming remains, $3; undertaker's charges for zinc-lined, hermetically sealed casket, hearse, etc., $57; transportation for remains and Mr. Alex. Frazier (to whom all credit is due), $11.45; expenses in Sumner, digging grave, hearse, carriage, etc., $8; total, $79.45.

NEW YORK, POSTAL.

Mr. G. W. Norcross, after a long absence, owing to duties in other departments, has returned and been assigned to the Western Division.

Mr. G. O. Heath, of the St. Louis bonus wire, has returned after an illness of two weeks.

Miss Laura Hofheimer is still absent on account of the serious illness of her mother.

Resignations: William Briggs, to accept a position in a broker's office; E. A. Ramsay, to go with the Commercial Cable Company at their main office on Broad street. The changes of March 1 included the appointment of E. A. Coney as assistant to General Traffic Chief F. F. Norton; J. T. Needham, assistant to Wire Chief J. A. McNulty, and the transference of Mr. J. S. Zeiss to the Eastern board, with hours from 5:30 P. M. to 1 A. M., and Mr. J. B. Rex from the Eastern board to assist J. J. Fredericks, Western and Southern wire chief, nights.

The branch at 450 Columbus avenue, corner Eighty-first street, is under the management of Mr. J. Shanley. W. Orange is the day operator; J. B. Weighart, night operator, and T. Hamil, clerk. Mr. Shanley has been manager of this office ever since it was first opened, eleven years ago. The company has in Mr. Shanley a valuable manager, and his staff is a very efficient one.

The spring rush of business is on, consequently those that are looking for extra are happy.

ST. LOUIS, MO., POSTAL.

Chief Operator B. P. Hancock, was sent lately to Memphis to locate a break in one of the Postal underground cables.

F. P. Mullen has resigned to accept a position with Cella & Co., brokers.

T. G. Coffy has also resigned, and is now with Schwartz, Dupee & Co.

G. E. Follette, late of this office, is working for a broker in Little Rock, Ark.

Other departures are: W. E. Whiting to Pine Bluff, Ark., with a broker; John Welch to the Western Union, Nashville, Tenn.

Arrivals: Miss Leona Kraft, C. J. Messman, D. J. Ellington, T. A. Gibney, J. F. Canavan, C. E.

How's This?

We offer One Hundred Dollars Reward for any case of Catarrh that cannot be cured by Hall's Catarrh Cure.

F. J. CHENEY & CO., Props., Toledo, O.

We, the undersigned, have known F. J. Cheney for the last 15 years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by his firm.

WEST & TRUAX, Wholesale Druggists, Toledo, O.
WALDING, KINNAN & MARVIN, Wholesale Druggists, Toledo, O.

Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price 75c. per bottle. Sold by all Druggists. Testimonials free.

Hall's Family Pills are the best.

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Handley, J. M. Alvis, Geo. Matthews, C. A. Sowl, K. Madden, J. F. Lewis, H. G. Sparks, J. P. Miller and E. E. Mayman.

NEW YORK, WESTERN UNION.

In the last issue of TELEGRAPH AGE an advertisement was published in this column offering for sale a photographic view of the Brooklyn Bridge, and giving the name of Albert E. Sink as that of the advertiser. Of course, everybody knows that Mr. Sink is the manager of the operating room, and it is absurd to suppose that that gentleman has gone into the picture business. The appearance of the name of Mr. Albert E. Sink in the advertisement was due to error, another name being intended.

Dr. George Ryder, senior ophthalmic house surgeon of the Massachusetts Charitable Eye and Ear Infirmary, Boston, Mass., recently paid us a visit. The doctor, who formerly was a star telegrapher, is a son of Manager Elisha Ryder, of Hartford, Conn.

A memorial service by the Amaranth Council, Royal Arcanum, to the late Thomas W. Kelley, was held at the hall of the Long Island Historical Society, Brooklyn, on the evening of March 12. A number of telegraphers were present. Mr. Walter C. Burton delivered an oration on the life and character of Mr. Kelley.

An evidence that gratitude is not always dead is shown by an incident which lately occurred. A gentleman presenting an appearance of prosperity called here March 2 to inquire the whereabouts of Mr. W. J. Parrott, an operator who worked at "195" several years ago. Giving his reason for wishing to see him, he said: "I have just returned from the Klondike and am in condition to return a favor once shown me by Mr. Parrott."

Messrs. William McEvoy and E. J. Phillips, of this office, witnessed the Presidential inauguration ceremonies March 4, at Washington, D. C.

Mr. R. H. Morris, office electrician, is for the third time rejoicing in being a grandfather. His daughter Maude, now Mrs. Theo. Smith, of Bayonne, N. J., presented her husband with a daughter on February 10. Mr. Smith is naturally the proudest man in New Jersey.

Mr. Frank Johnson, formerly of "195," returned from the Berkshire Hills and is now employed at the Stock Exchange.

Miss Loretta O'Donnell was promoted from message assorter to copyist, March 8.

The following operators left here recently for Jacksonville, Fla.: Messrs. D. Drew, R. J. Walsh, F. L. Gerber, C. L. Hollywood, E. C. Bailey and C. J. Chryst.

Miss Belle M. Dennis, formerly of 1227 Broadway, and latterly employed by a brokerage firm in the Cotton Exchange, died at her home in this city, March 1. Miss Dennis was a brilliant operator, she having won a prize for fast and perfect sending at a tournament held in New York a few years ago.

Sympathy is extended to the Misses Grace, Ruth and Daisy Worthington, of this office, on the death of their brother, which occurred after a long illness on March 4.

The song, "My Old Virginia Home Upon the Farm," words and music by B. L. Brannan, of this office, appears to have made a hit and is gaining considerable popularity. It was published March 3 in the New York Herald.

Mr. William Davis has been transferred from the Wheatstone department to the Buckingham printing system.

The dry goods district office, 255 Church street, is a busy place. Its personnel is as follows: J. W. Woods, manager; Messrs. F. J. Duggan, I. Perner, and the Misses M. A. Fennell, Anna Hall and A. B. Fitz Gerald, operators; Miss Lucie Gibbons, receiver; Miss Etta Sweeney, statement clerk; Messrs. Horace Yarrington and A. Rosenberg, respectively, delivery clerk and assistant clerk. Mr. Jerry Lyons is the manager of the American District Telegraph and Mr. W. T. Holland is clerk.

Any fifty-cent piece of music mailed eighteen cents. Rusticana, Anchored, Calvary, Palms, Flower Song, ten cents each. Anything at less than half publisher's price. I will sell you a good piano for one dollar per week, from $35 up. B. L. Brannan, 195 Broadway, New York. (Adv.)

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Boston Telegraphers' Mutual Aid Association.

The annual meeting of the Telegraphers' Mutual Aid Association of Boston, Mass., was held at Young's Hotel, that city, on March 3, and was atttended by about 100 members. The treasurer's report showed that the assets during the year increased over $500. The receipts from the annual ball were $800.

During the year, according to the relief committee's report, $850 had been paid out in sick and death benefits.

The officers elected for the ensuing year were: Michael F. Hart, president; A. V. Losea, vice-president; J. A. Molloy, recording secretary; H. L. Flynn, financial secretary; J. O. Roorback, treasurer; P. T. Cronin, sergeant-at-arms. These committees were chosen: Executive, A. V. Mann, W. J. Ryan, P. J. Farrell, F. J. Flynn; auditing, W. V. Price, Edward Smullen, H. H. Cooper, J. F. Carter, P. J. Molloy; relief, W. H. Sullivan, Miss M. W. Golden, T. J. Falvey, David Connell, C. J. O'Connor.

THE UNITED STATES MILITARY TELEGRAPH CORPS.—Col. Wm. B. Wilson, of Philadelphia, Pa., president of the United States Military Telegraph Corps, who is now in the West enjoying a vacation, reports that the late Congress did not act on any of the measures introduced in that body in behalf of the military telegraphers.

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The Next Meeting of the Association of Railway Telegraph Superintendents.

When the Association of Railway Telegraph Superintendents adjourned at the close of its nineteenth annual convention, held at Detroit, Mich., on June 20-22, 1900, it was to meet at Boston, Mass., on June 19, 1901. The attractions of the Pan-American Exposition, to be held at Buffalo, N. Y., from May 1 to November 1, next, an affair second only in extent, interest and beauty of physical design to the World's Fair at Chicago, have proved an irresistible drawing card, and given to the "Queen City of the Lakes" for the nonce a preference over the "Hub"; so that instead of at Boston, the members by an almost unanimous vote, obtained by mail, have decided to hold the twentieth annual convention this year at Buffalo, on Wednesday, Thursday and Friday, June 19, 20 and 21.

It is believed that under the peculiar circumstances the change of location, which the executive committee announces, will be met with a very general and hearty approval and will undoubtedly be the means of securing a larger attendance than would otherwise have been the case.

The committee of arrangements, hitherto announced, has been enlarged by President W. F. Williams by the addition of the following names: Messrs. L. B. Foley, J. H. Jacoby and Henry W. Pope. The full committee, as now constituted, is made up as follows: E. A. Smith, of Boston, Mass., chairman; F. R. Valentine and S. A. D. Forristall, of Boston; L. S. Wells, of Long Island City, N. Y.; L. B. Foley, of New York; J. H. Jacoby, of South Bethlehem, Pa., and Henry W. Pope, of Buffalo, N. Y.

Damaged by the Big Storm.

The great storm which swept the country Sunday and Monday, March 10 and 11, did unusually severe damage to the telegraph over a wide area of territory. Thousands of telegraph poles, with their burden of wires, were leveled to the ground by the strong wind, accompanied in some sections by heavy sleet. Fallen trolley lines on telegraph wires in Chicago, Ill., and Kansas City, Mo., set fire to the terminal rooms in the main offices of the Postal Telegraph-Cable Company at both of these points, causing thereby considerable damage and slight interruption to business.

The annual election of the New York Telegraphers' Aid Society will take place March 26 at 195 Broadway, New York. A spirited contetst is taking place for the various offices, with the exception of the secretaryship and treasurership, Mr. W. J. Quinn being renamed for the former, and Thomas M. Brannan for the latter position without opposition. Mr. H. W. Sauer, one of the best known operators in the Western Union service, and Mr. F. F. Norton, equally prominent in Postal circles, are contesing for the presidency. Mr. E. E. Brannin and Mr. C. T. Powers, both active men, are candidates for the vice-presidency.

TABLE OF TOLLS ON DAY OR NIGHT MESSAGES OF FROM 10 TO 50 WORDS.

Number of Words.	Rate 22-1	Rate 25-1	Rate 25-2	Rate 30-2	Rate 35-2	Rate 40-3	Rate 50-3	Rate 60-4	Rate 75-5	Rate 100-7
10	20	25	25	30	35	40	50	60	75	100
11	21	26	27	32	37	43	53	64	80	107
12	22	27	29	34	39	46	56	68	85	114
13	23	28	31	36	41	49	59	72	90	121
14	24	29	33	38	43	52	62	76	95	128
15	25	30	35	40	45	55	65	80	100	135
16	26	31	37	42	47	58	68	84	105	142
17	27	32	39	44	49	61	71	88	110	149
18	28	33	41	46	51	64	74	92	115	156
19	29	34	43	48	53	67	77	96	120	163
20	30	35	45	50	55	70	80	100	125	170
21	31	36	47	52	57	73	83	104	130	177
22	32	37	49	54	59	76	86	108	135	184
23	33	38	51	56	61	79	89	112	140	191
24	34	39	53	58	63	82	92	116	145	198
25	35	40	55	60	65	85	95	120	150	205
26	36	41	57	62	67	88	98	124	155	212
27	37	42	59	64	69	91	101	128	160	219
28	38	43	61	66	71	94	104	132	165	226
29	39	44	63	68	73	97	107	136	170	233
30	40	45	65	70	75	100	110	140	175	240
31	41	46	67	72	77	103	113	144	180	247
32	42	47	69	74	79	106	116	148	185	254
33	43	48	71	76	81	109	119	152	190	261
34	44	49	73	78	83	112	122	156	195	268
35	45	50	75	80	85	115	125	160	200	275
36	46	51	77	82	87	118	128	164	205	282
37	47	52	79	84	89	121	131	168	210	289
38	48	53	81	86	91	124	134	172	215	296
39	49	54	83	88	93	127	137	176	220	303
40	50	55	85	90	95	130	140	180	225	310
41	51	56	87	92	97	133	143	184	230	317
42	52	57	89	94	99	136	146	188	235	324
43	53	58	91	96	101	139	149	192	240	331
44	54	59	93	98	103	142	152	196	245	338
45	55	60	95	100	105	145	155	200	250	345
46	56	61	97	102	107	148	158	204	255	352
47	57	62	99	104	109	151	161	208	260	359
48	58	63	101	106	111	154	164	212	265	366
49	59	64	103	108	113	157	167	216	270	373
50	60	65	105	110	115	160	170	220	275	380

British Telegraphers Praised.

British telegraphers have recently received a good many compliments. The King has thanked them for the services they rendered at Osborne and at Windsor during the last illness of Queen Victoria, and the German Emperor has decorated Charles Mullens, the operator who was sent from London to work the cable laid temporarily from the imperial yacht Hohenzollern to the shore.

The cross bestowed on Mullens is a handsome piece of work. On the front is the imperial monogram, W. R., surmounted by a crown, and on the back is an inscrpition setting forth that the recipient had rendered service to the State. If Mr. Mullens should ever care to settle down in Ger-

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many the cross will entitle him to draw a modest pension.

Equally gratifying to the telegraphers is the emphatic testimony to the excellence of their work during the war in South Africa. Field Marshal Lord Roberts, in the full dispatches just published in the official London Gazette, says that, despite the enormous difficulties of the country traversed, his telegraphers almost always managed to keep him in communication with all his scattered forces in the enemy's country.

General Buller writes of their technical knowledge, their unwearying perseverance and their high state of efficiency, adding: "All officers, non-commissioned officers and men of the telegraph department have done exceptionally well. The only fault I have to find with them has been that they have been sometimes too anxious to keep their line up and have incurred undue risk."

Gen. Sir George White declares that the service of the telegraphers during the historic siege "was of the highest value and conduced greatly to the successful defense of Ladysmith." The use which General Baden-Powell made of his small band of telegraphers is by this time pretty well known. All his outlying forts and lookout posts at Mafeking were connected with headquarters, and he was thus able to receive reports and issue orders for all parts of the defense instantaneously. Signalling was reduced to a fine art and maintained by heliograph lamp and flag. Megaphones were also made and used in outlying trenches and posts, and phonophores, attached to ordinary telegraph lines, were used on the armored trains which used to bother the Boers so much.

General Baden-Powell thus sums up his appreciation of the services of the gallant telegraphers: "Their duties were unceasing, by night as well as by day, and were frequently carried out under heavy fire and at great personal risk. The zeal, energy and willingness displayed by these officers was most conspicuous throughout the siege, and their work had a large share in bringing about the successful issue of the siege."

Leadville Man Receives His Reward Here on Earth.

According to old Farmer Lawton, the night chief operator of the Western Telegraph Company, Denver, Col., the Legislature of that State would not be called upon to offer a bounty in order to increase Colorado's population if all men were as public-spirited as Col. B. Brooks, superintendent of the Western Union in that city.

The old farmer says that whenever there is an increase in one of the operator's families, if it happens to be a girl, which Colonel Brooks seems partial to, it means a $15 to $25 increase in that operator's salary. For instance, Mr. Martin has been drawing $75 per month here for several years. Recently his wife presented him with a fine girl baby, and Colonel Brooks appointed him manager of the Leadville office at $100 per month.

"Boys are good for a $5 or $10 raise in Mr. Brooks' estimation," said the farmer. "When my first boy made his appearance fourteen years ago, my salary was immediately increased $10 per month, and since then the young farmers have been coming so thick my conscience actually smites me when I sign the pay roll each month."



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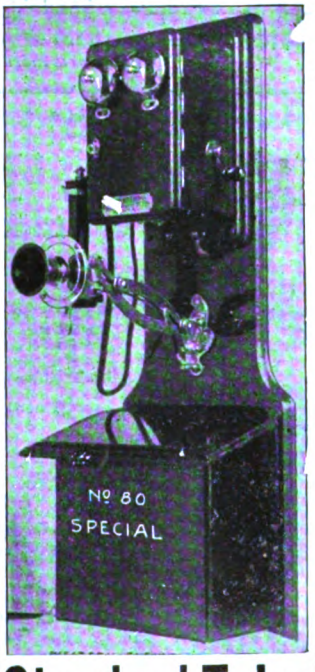
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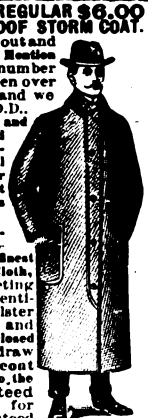
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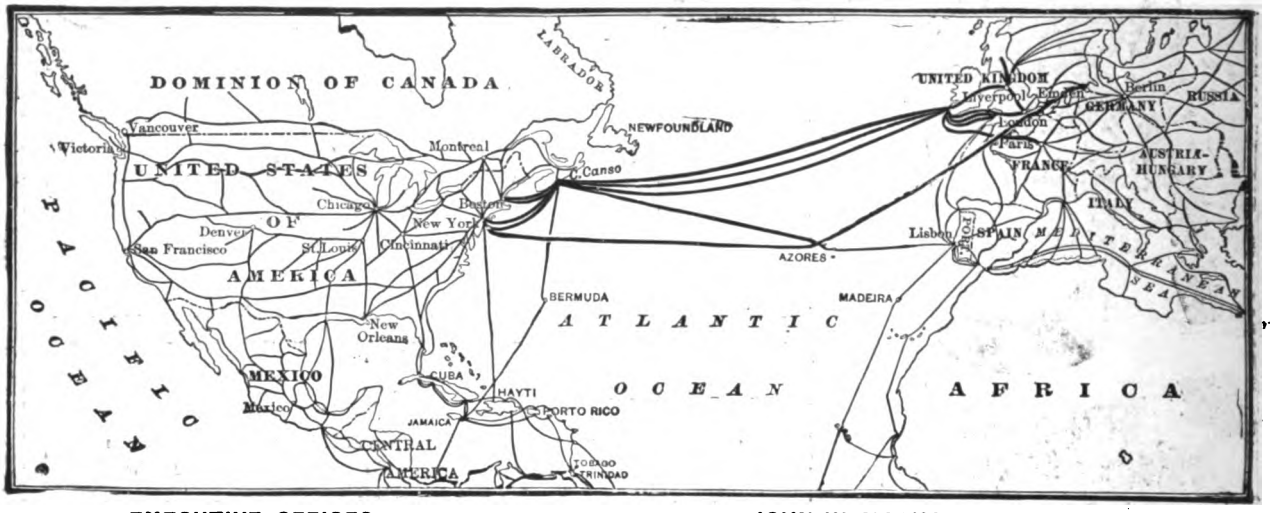
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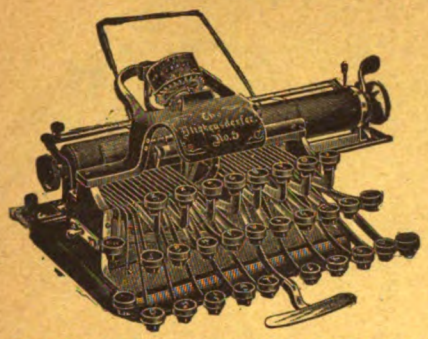
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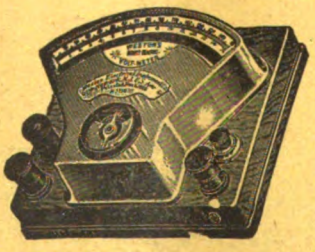
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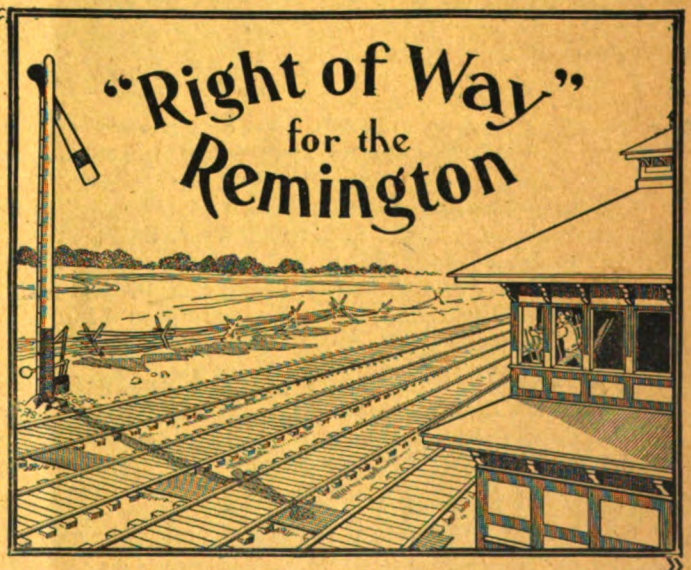
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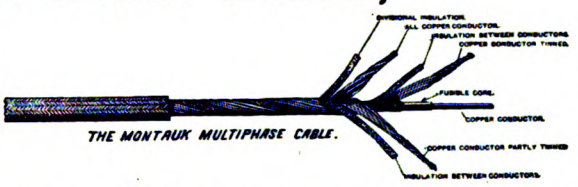
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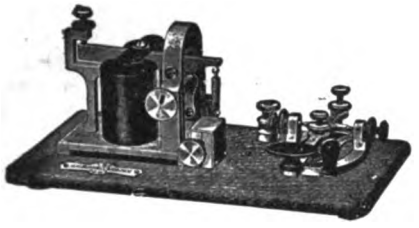
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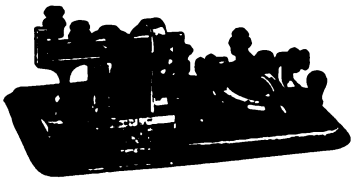
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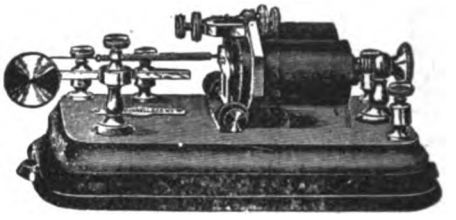
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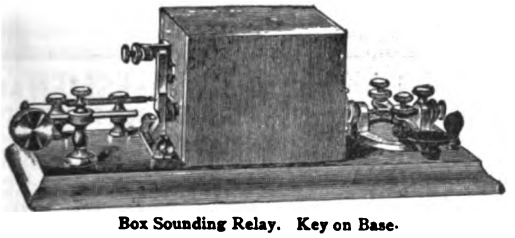
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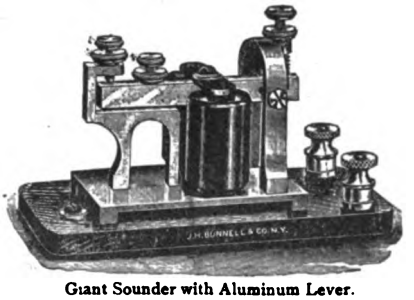
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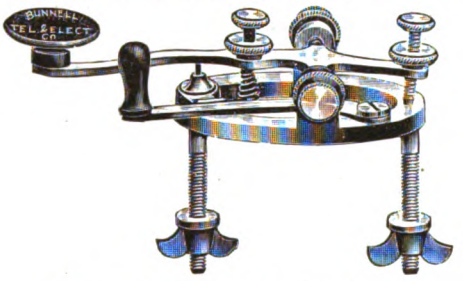
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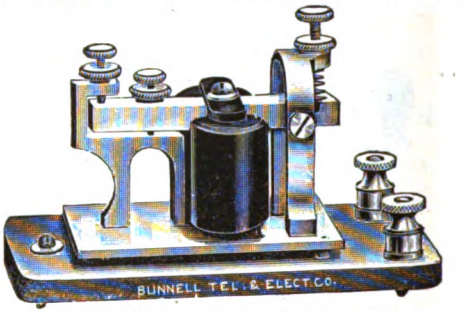
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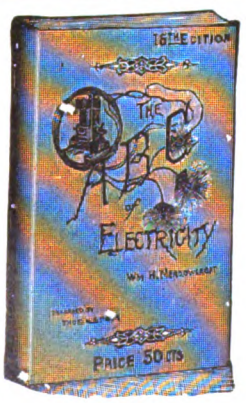


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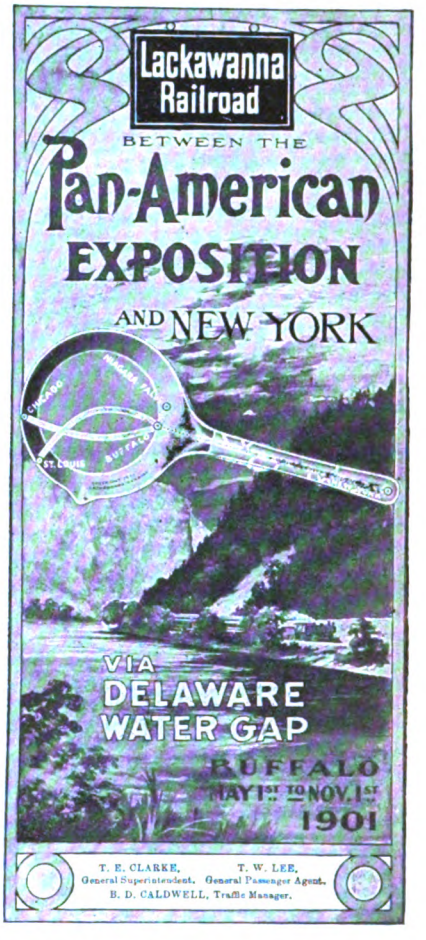
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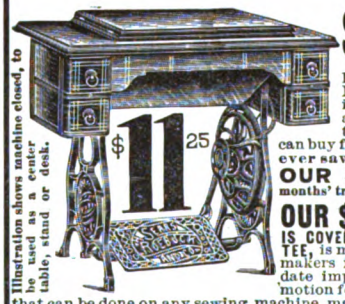


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THE TELEGRAPH AGE.

No. 7. NEW YORK, APRIL 1, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

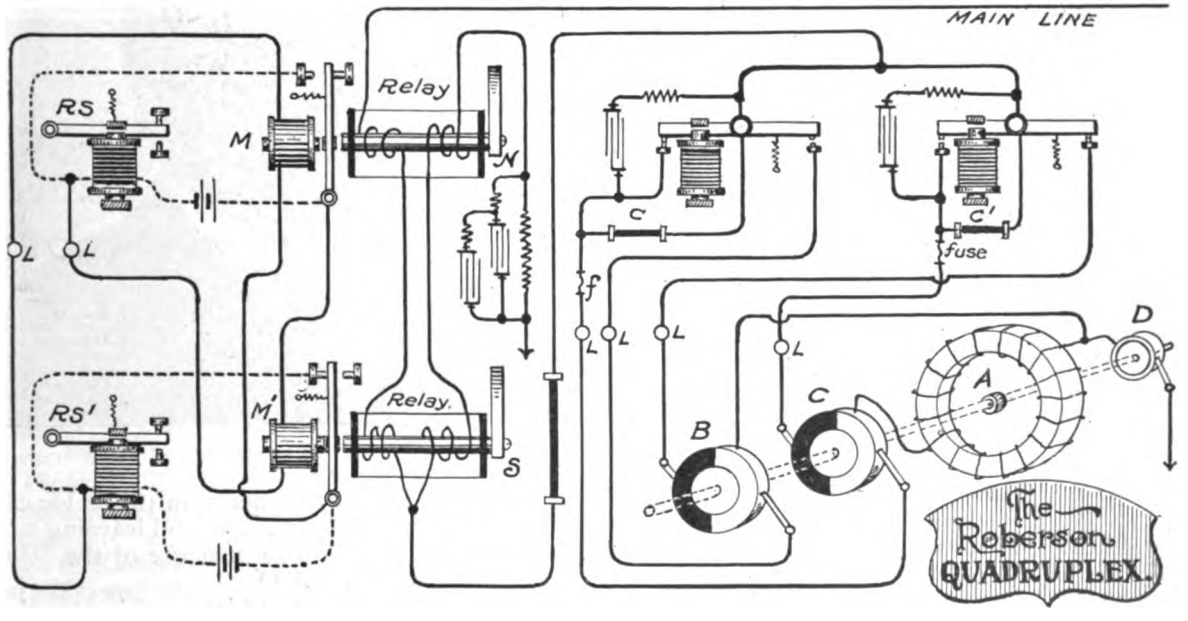
BY WILLIS H. JONES.

The Roberson Quadruplex—Concluded.

As it is the desire of the writer to make each article as complete in itself as possible, it will be necessary, before showing the details of the Roberson quadruplex system, to restate that the aim of the inventor is to do away with the present increment of current plan, upon which principle the common side relay of the Edison quadruplex is actuated, and in its place substitute a relay responsive to polarity only, and in principle and efficiency identical in all respects with its companion on the first side of the table. Each relay in Mr. Roberson's system is independent of the other, and as long as one side of the quadruplex is workable the other will continue to hold out. At the same time, it must not be inferred that these instruments respond to direction of current after the manner of polarized relays on the first side of the present quadruplex system, but rather that each instrument is responsive to a maximum degree of magnetism developed in its core by a given polarity of current over and above that which the opposite polarity can excite in the same relay under the existing conditions. As the cores of each relay are permanently magnetized, instead of the armatures, the working margin, ranging as it does between the maximum and the minimum magnetic excitation, is effected by means of the initial magnetism in the cores of strongly polarized relays, the polarity of which magnetism alternately assists and opposes the electric current in magnetizing the relay as explained fully in the preceding chapter.

To meet the requirements of his system, Mr. Roberson employs an alternation current dynamo possessing peculiarly constructed rings which are attached to and revolve with the same shaft as the armature, as shown in the accompanying diagram.

Rings *B* and *C* are really but half circles, for the reason that the dark portion of each is insulated



and therefore "open" during the time the upper brush makes contact there. *D* is a full metal ring making continuous contact with the earth by means of a brush. Half ring *B* is also a "ground," being connected with *D* on the same iron shaft.

Half ring *C* sends positive impulses into one

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brush during half a revolution of the armature and negative into the other brush during the other half revolution. The front contact point of one transmitter is assigned to one of these brushes while the rear contact leads to one of the ground brushes of that half of ring *B* which grounds the open point of the same transmitter at that time.

The front and rear contact points of the companion transmitter are connected similarly to the opposite polarity brush of *C* and the remaining ground brush of *B* (see cut).

These rings and armature revolve with a frequency of about 40 periods per second, hence when both transmitters are closed the copper portion of *C*, touching first one brush and then the other in rapid succession, as it does, necessarily sends an alternating current through the wire. Should but one transmitter be closed, impulses of the polarity assigned to that instrument alone fills the line. With both keys open no impulses go to the line.

An incoming signal checked by like poles to line is registered by the home battery through the artificial line coil in the same manner that obtains in the present quadruplex system.

The only accessories in the way of apparatus not usually employed on the polar side of a quadruplex are one repeating sounder and one extra magnet, *M*, which are connected in multiple for best results. The former serves in its usual capacity as a "bugcatcher," while the magnet tends to hold the relay armature steady and maintain a perfect adjustment, whether one or both pulses are being received from the distant station. The two carbon rods, *C* and *C'*, contain about 6,000 ohms resistance each and are used to shunt the front contact points of the respective transmitters, thereby maintaining a weak current through the open points of the transmitters to the earth and preventing excessive sparking.

Condensers are, of course, employed in their usual capacity. The reader will understand Mr. Roberson's system readily if he will but study the accompanying diagram carefully.

The practical results obtained from Mr. Roberson's quadruplex have been very satisfactory indeed, but owing to a somewhat deep-seated prejudice on the part of telegraph employes against using any new system employing an alternating current or otherwise suggestive of vibratory tendencies, he has had rather uphill work. Recent tests, however, made, and work done on this quadruplex have proved conclusively that his system develops no more inductive effects in other circuits than that of the present quadruplex; and that the so-called "induction" credited to the later invention arose from another source entirely.

His currents so far have been generated from comparatively small machines, which fact suggests that still better results may be expected with the employment of larger and steadier running dynamos.

The impression gained that each such quadruplex will require an individual machine for its operation is erroneous. With a machine of proper capacity it will only be necessary to add two rings to the common shaft for each additional quadruplex circuit.

Mr. Roberson has on several occasions demonstrated that he can "quad" a much smaller wire than would be possible with the old system, and with one of the many good wires assigned to his circuit, he is getting two sides out of it regardless of rain or fog; in fact up to the present writing his hope has been strengthened by the fact that one of the longest circuits from the Western Union Telegraph office, 195 Broadway, New York, equipped with his apparatus, has not failed to yield two good sides on this size and kind of wires, regardless of the weather and at such times when all other long quadruplex circuits were reduced to duplexes.

[The writer of "Some Points on Electricity" would be pleased to have readers of this journal ask questions appertaining to electrical matters of interest to telegraphers which may be answered under the above caption.]

(*To be continued.*)

Death of L. D. Parker.

Leander D. Parker, late general superintendent of the Postal Telegraph-Cable Company, Chicago, Ill., died at his home in Evanston that State, on March 19, after an illness of three years. He was



THE LATE LEANDER D. PARKER, OF CHICAGO.

born at Stuckly, Lower Canada, in 1837. He came to this country at an early age, and learning telegraphy, in 1850, he became manager of the "Wade Line" office at Ashland, O.

In 1855 he removed to Chicago and entered the service of the Illinois and Mississippi Telegraph Co. At the beginning of the Civil War in 1861, he joined the army and was assigned to duty as military operator at Cairo, Ill.

He served under General Grant, and at the battle of Pittsburg Landing rendered conspicuous service. A cable had been laid across the river at that

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point, but proved to be too short by several feet. To overcome this difficulty the end was fastened to a tree that projected some distance over the water, and here, among its branches, Mr. Parker established his office. His instrument rested on the tree trunk, a limb held his letter clip and paper, and Mr. Parker long sat astride of his office sending and receiving important dispatches.

He remained in Government service, connected with the Army of the Tennessee until 1863, when he returned North and renewed his service with the Illinois and Mississippi Company. He was manager at Quincy, Ill., for several years prior to 1869, when he was appointed chief clerk to the district superintendent of the Western Union Telegraph Company, at Chicago, and was made assistant superintendent in 1880.

In 1881 he left this position and was appointed assistant general superintendent of the Mutual Union Telegraph Company, which had then just been organized. In the fall of 1882 he undertook the construction of the western portion of the Postal Telegraph Company's line, completing the same into Chicago early in 1883. Soon after its completion he was appointed general superintendent of the Postal Telegraph-Cable Co., a position he held until January 1 last, when he retired from active telegraph service on account of ill health.

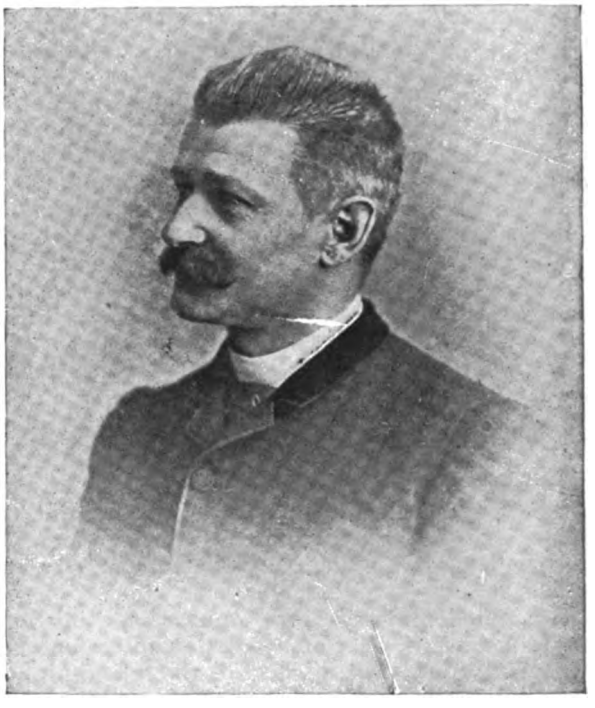
The funeral services were held at Evanston on Thursday afternoon, the 21st inst. These were impressive and contained a reference to Mr. Parker's long connection with the telegraph, his identification with the United States Military Telegraph Corps, of which he was one of the organizers and the first vice-president, together with the fact that he was also a member of all of the various telegraph societies. He was a prominent Mason, and the services at the grave were conducted under the auspices of that order.

Every superintendent and many of the employes in the Western Division of the Postal Telegraph-Cable Company, as well as representatives from railroad and other commercial telegraphs of the West, attended the services. Mr. Charles P. Bruch, assistant general manager, and Mr. T. E. Fleming, special agent, of New York, were present representing the executive officers of the company.

Among other telegraph people present were: Edward J. Nally, Mr. and Mrs. Charles M. Baker, Mr. and Mrs. W. I. Capen, William R. Holligan, George M. Dugan, C. F. Annett, A. R. Swift, William J. Lloyd, A. C. Murphy, Joseph Uhrig, Edward Bell, J. D. Clark, J. S. Robinson, Henry W. Plum, E. E. Naugle, Frank J. Loesch, C. F. Loesch, James E. Pettit and Edward Sholes, of Chicago; F. W. Conger, of Cincinnati; Guy E. Paine, of Kansas City; Henry J. Kinnucan, of Detroit; Mr. and Mrs. H. A. Tuttle, of Minneapolis; F. W. Samuels, of Indianapolis; C. F. Fox, of Des Moines, Ia.; E. P. Whitford, C. W. Potter, W. J. Wall, C. W. Tatge, C. Myers, F. W. Rothery, L. R. Thomas, Mrs. A. W. Porter, Elizabeth M. Carson, Miss Nellie Veale, Miss Maggie Veale, Thalia N. Brown, E. H. Baker, Dr. J. B. Baker, T. W. Sullivan, J. T. Herza, John Holt, E. E. McClintock and C. W. Plum, of Chicago, Ill.; W. H. Alexander, of Omaha, Neb.; Prof. F. A. Parker, of Madison, Wis.

Death of E. M. Shape.

Emil M. Shape, chief operator of the Western Union Telegraph Company, Milwaukee, Wis., one of the best-known and expert telegraphers in the United States, died suddenly of pneumonia in that city on March 21. Mr. Shape was born in Saxony, Germany, December 25, 1842, and came to this country when but 12 years of age, finally settling in Milwaukee in 1857. In the following year he began the study of telegraphy, in which he speedily became proficient. Entering the railway telegraph service, he became an assistant train dispatcher, but this he soon abandoned for employment with the Western Union Company at Milwaukee. Early in 1864 he entered the army as a military telegrapher, first at Nashville, Tenn., shortly after being transferred to the headquarters of Gen. Geo. H. Thomas, commanding the Department of the Cumberland, where he remained as operator and confidential cipher clerk until the close of the war. He then returned to Milwaukee and again entered the employ of the Western Union Telegraph Company. He was appointed chief operator in 1867, a position he continued to hold up to the time of his death. His funeral was attended by a large number of members of the fraternity.



THE LATE EMIL M. SHAPE, OF MILWAUKEE.

Recent Telegraph Patent.

Mr. Emmet Howard, manager of the Western Union Telegraph Co., Memphis, Tenn., has been granted a patent for a manifolding telegraph blank

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Obituary.

Omas H. Cotton, of Mt. Vernon, O., an operator, committed suicide on March 9. He had lost his position on account of telegrapher's paralysis, and worry over the fact caused the act.

John Morgan, aged 65 years, for many years manager of the Western Union Stockyard office at West Albany, N. Y., died at that place on March 8. He was the brother of Mr. M. L. Morgan, manager of the Western Union Telegraph Company in Albany.

Dr. William F. Channing, son of Rev. William Ellery Channing, the celebrated Unitarian divine and author, died March 19, in Boston, Mass., at the age of 81. Dr. Channing was the inventor of the fire alarm telegraph system as used to-day, and was a profound student of electricity.

Joseph H. Walton, one of the best-known and most expert telegraphers of Boston, Mass., died in New York of heart failure on March 16. He spent most of his life in Boston in the employ of the Western Union Telegraph Company. He left the telegraph service last fall on account of ill health and came to New York to assist his brother in outside business. He was 45 years of age and unmarried. His funeral was largely attended by comrades, including Inspector F. T. Viles, Traffic Chief Dougher, All Night Chief James B. Colson, Night Traffic Chief Roorbach, Wire Chief Nason, Repeater Chief M. C. Harrington, Caleb Pope, George Cunningham, David Bailly, Stokely Johnson, W. A. Hancock, Harvey Ross and T. C. Devine.

Col. George B. Cowlam, of Madison, Ind., a member of the United States Military Telegraph Corps, died of apoplexy in New York city on March 11.

He joined Duryea's Fire Zouaves at the outbreak of the Civil War and took part in several engagements. He was detailed to the telegraph department of the army and became chief telegrapher under General McClellan. He was at Newport News at the time of the famous battle between the Monitor and Merrimac. Plum's history of the United States Military Telegraph Corps says of him:

"Suddenly, amid the deep reverberations of the heavy guns, Cowlam, at Newport News, called up Fort Monroe, and, referring to the Merrimac, thus pictured the scene of that eventful day, March 8, 1862: 'She is steering straight for the Cumberland. The Cumberland gives her a broadside. She keels over. Seems to be sinking. No, she comes on again. She has struck the Cumberland and poured a broadside into her. God! The Cumberland is sinking. The Cumberland has fired her last broadside.'"

Gallant Cowlam continued at his instrument, describing each new phase in the fight. Two shells tore through his office, but there was the same steady hand at the key.

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Personal Mention.

Mr. James D. Reid, affectionately known as the "Father of the Telegraph," is very seriously ill at his home in New York city, a result due to an operation for cancer.

Mr. Charles W. Price, editor of the Electrical Review, New York, and well and favorably known in telegraph circles throughout the country, was recently elected treasurer of the Lotus Club, one of New York's most prominent clubs.

Mr. William J. Latta, of Philadelphia, has resigned the presidency of the Telephone, Telegraph and Cable Company of America, of New York city. He is still a director and a member of the company's executive committee.

Mr. W. C. Humstone, superintendent of the Western Union Telegraph Company, New York, has returned from Florida, accompanied by his wife. The trip was undertaken for the benefit of her health, which has become much improved.

Mrs. Isabel Field Judson has sent to the National Museum the half American, half British flag used by her father on board the United States frigate Niagara in 1856-57 in laying the first Atlantic cable. This flag, which is 45 feet long, having a triangular division of the flags of the two countries, completes an already fine Field collection now in the museum. It was made under Field's immediate direction, and in addition to waving from the Niagara at the laying of the first cable, floated from the Great Eastern in 1866 and 1867 when the second cable was laid.

Sir Henry McCallum, the new Governor of Natal, South Africa, is an old telegraph operator, and has been stationed in Newfoundland. He was with General Kitchener at the War College, graduating in 1871, when he became superintendent of military telegraphs for the southern district of England. He is able, according to an exchange, to build a bridge, a highway or a conduit, to construct a railroad, to set up, run and repair a locomotive; to operate electric wires and control a telegraph system, to survey a territory, to build forts and plan defenses, to organize and preside over a municipality, and to administer a territory as large as the British Isles. His record, in college or in the colonies, is a unique one, and few of the British colonial staff can show a round of such conspicuous and unbroken success in so many diverse capacities.

Recent New York Visitors.

Mr. E. J. Nally, general superintendent Postal Telegraph-Cable Co., Chicago, Ill.

Mr. C. M. Baker, general superintendent of construction of the Postal Telegraph-Cable Co., Chicago, Ill.

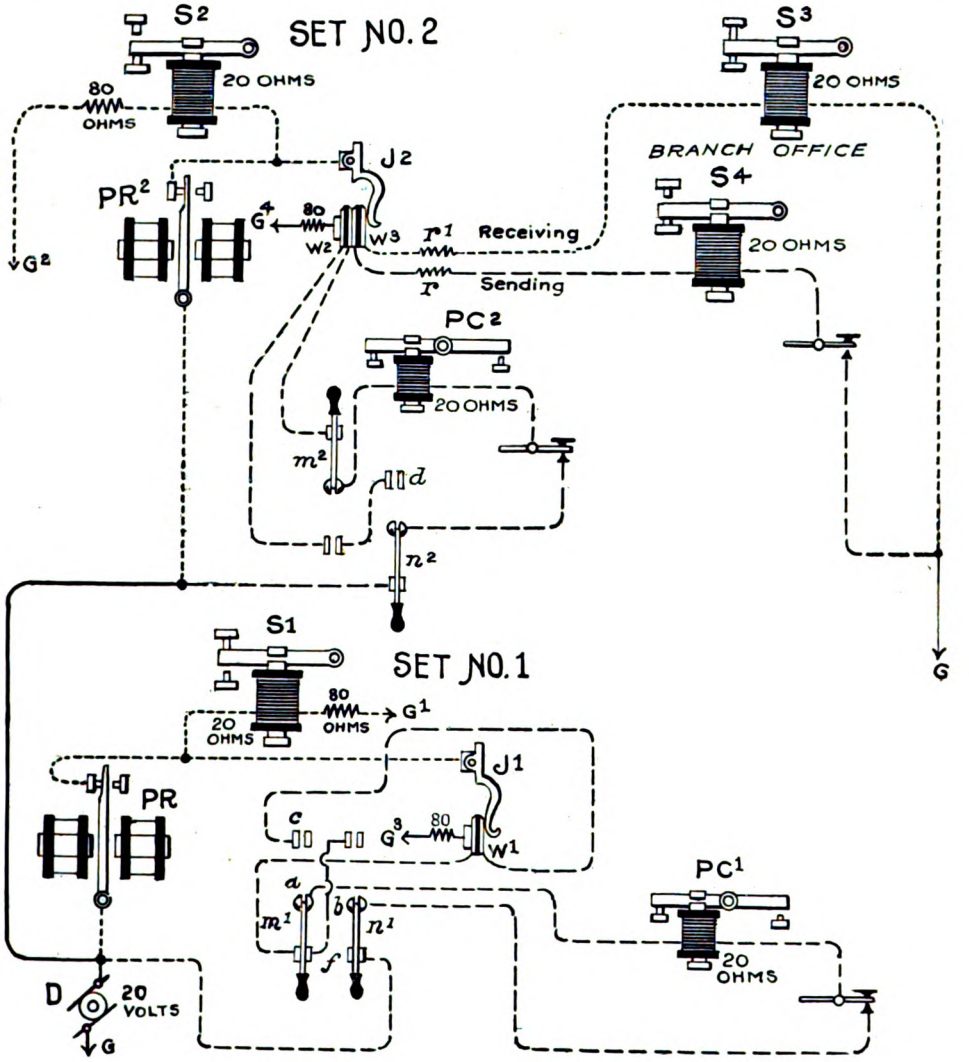
Mr. W. Y. Ellett, superintendent of Fire Telegraph, Elmira, New York, who was the guest of Mr. Frank C. Mason, superintendent of Police Telegraph, Brooklyn, N. Y.

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ARRANGEMENT OF LOCAL CIRCUITS ON CANADIAN PACIFIC RAILROAD.

BY H. S. WEBB.

A very interesting paper, by Mr. W. J. Camp, superintendent of the Canadian Pacific Telegraphs, appeared in the Canadian Electrical News on "The Use of the Dynamo and Storage Battery in Telegraph Offices." The readers of TELEGRAPH AGE are already familiar with more or less of the elementary matter on duplex and quadruplex systems contained in the article. However, we do not believe the switch arrangement for the local circuits are so well known but that they will stand being explained here. For the benefit of TELEGRAPH AGE the liberty has been taken of rearranging the matter somewhat and only using the part that would be of most interest.



On the Canadian Pacific Railroad the local sounder, pole changers and transmitters are wound to a resistance of 20 ohms. They could all be connected in multiple to a 6-volt dynamo, but in nearly every office where dynamos are used the local circuits of the multiplex set are connected as shown in the figure. Each half of a quadruplex set or half repeater is treated as a duplex set. The author considers the arrangement shown the most simple yet designed. By means of resistance coils, each local circuit of the multiplex and repeater sets is brought up to 100 ohms and the local circuit dynamo gives from 20 to 25 volts. The former voltage is usually found to be sufficient.

The lower half of the figure shows one set as ordinarily arranged. Starting from the dynamo, *D*, the receiving circuit passes through the contacts on the polar relay PR_1, 20-ohm sounder S_1, 80-ohm coil, grounds G_1 and G to dynamo D. A branch or leg, as it is called, passes through jack J_1, but is open at c. The sending circuit may be traced from the dynamo D, through the switch n_1, key$_1$, 20-ohm pole changer PC_1, switch m_1, wedge W_1, lower or back contact of the jack J_1, 80-ohm coil, ground G_3 and G to dynamo D.

To extend the locals of a duplex to a branch office, the loop wedge W_3 is inserted in the spring jack on top of the wedge W_2, the switch m_2 is turned up and the switch n_2 is turned down, as

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shown in the upper half of the figure. The circuits are then as follows: Receiving side; dynamo D, polar relay PR_2, sounder S_2, 80-ohm coil, ground G_2; also through the branch or leg from the contacts of the polar relay PR_2 to the top of the jack J_2, front of wedge W_3, resistance coil r^1, receiving side of the branch office loop, branch office sounder S_3 and ground. The resistance coil r^1 is adjusted so as to make the circuit from the wedge to the branch office ground have a total resistance of 100 ohms, including the branch office sounder. Sending side: Dynamo D, switch n_2, key, pole changer PC_2, switch m_2, front of wedge W_2, back of loop wedge W_3, coil r, sending side of the branch office loop, branch office sounder S_4, key and ground. The resistance from the wedge W_3 to branch office ground is 80 ohms, including the sounder S_4. On this circuit the resistance of the pole changer PC_2 is added, thus making a total of 100 ohms.

To work as repeaters the wedges of the two sets are exchanged, wedge W_1 of the No. 1 set being inserted in jack J_2, and wedge W_2 in jack J_1; the table switches m_1, m_2, n_1 and n_2 on each set are turned up. The circuit may then be traced from the ground G, dynamo D, contact of the polar relay PR_1, 20-ohm sounder S_1, 80-ohm coil and ground G_1; also from the polar relay contact to top of jack J_1, front of wedge W_2, m_2, pole changer PC_1, key, switch n_2, d, back of wedge W_2, lower part of jack J_1, 80-ohm coil and ground G_3. The circuits from No. 2 set are the same. A break at the contacts of either relay will open its sounder and also the pole changer of the other set. Thus, signals received from the line on No. 1 set are automatically transmitted over the line connected to No. 2 set, and vice versa.

Sometimes the dynamos are operated from a common shaft driven by an electric motor or other power, but the plan most generally adopted is to use motor generators, each machine working independently. In order to be reasonably certain of a continuous supply of power, spare leads are run to different power stations, and spare machines are also kept in readiness, so that not more than a minute or so is lost at any time.

In cities where continuous power cannot be obtained from at least two different stations, storage batteries are now largely used. Generally speaking, the wiring of a telegraph office, from the discharge leads of a storage battery to the instruments, etc., is the same as for dynamos, but extra switches have to be used for connecting the various banks of battery with the charging or discharging circuits. Various devices are used, but as the Canadian Pacific Railroad system is considered the most flexible, it will be described alone.

At Vancouver the voltage of the Winnipeg street railway power circuit is transformed by two motor generators, one reducing it to 7 volts, or 20 amperes capacity for charging local batteries, and the other to 130 volts, 5 amperes for main batteries. In Ottawa a 250-volt power circuit is reduced to 7 volts for the locals and the mains are charged direct without reduction. In St. John the 114-volt lighting circuit is used. The locals are in two banks, of two cells each, of chloride accumulator, type E 9, one bank being charged while the other is discharging. There is no dead resistance inserted in the local circuits, as in the case where dynamos are used, extra cells providing the necessary power when quadruplexes or duplexes are extended to branch offices.

In many places on Canadian Pacific lines, storage batteries are used in place of dynamos and in such cases no resistances are inserted in the local circuits but extra cells are used, thus providing the necessary power when the quadruplxes or duplexes are extended to branch offices. When storage cells are used for the main batteries, the switch consists of a series of spring jacks and wedges, so designed that the jack is open and a wedge cannot be inserted when reversed. The negative pole of the battery is connected to the top of a wedge and the positive pole to the bottom. It is predicted that shortly storage cells will replace gravity batteries even for locals at wayside stations; the storage cells will be charged at some central point and distributed by train to the wayside stations.

Building Ocean Cables.

Considerable attention was recently attracted to the subject of ocean cables and the possibility of their construction in Pittsburg, Pa., where is located one of the largest cable manufacturing concerns in this country, by an address delivered a short time ago by Mr. Joseph W. Marsh, vice-president and general manager of the Standard Underground Cable Company, of that city. Mr. Marsh's address was an able one and briefly he sketched the history of cable making and laying, and then spoke of the possibility of developing to a greater extent the industry of making cables in this country. Mr. Marsh is especially fitted to discuss the subject of cables, and his timely allusion to the fact that another industry might be reared in the United States is of great benefit. Mr. Marsh was born in New York city. He was reared in Tuscarawas county, near Coshocton, O., and went to Pittsburg, January 2, 1870, to attend a course at the Iron City College. He became one of the professors of the institution and was connected with it for nearly three years. He then accepted a position as bookkeeper and stenographer for Baldwin & Miller, telegraph construction contractors. It was during this time he became acquainted with Richard S. Waring. Mr. Waring, with Baldwin & Miller, investigated the question of underground cables. Mr. Marsh became the private secretary for Mr. Waring. Soon after Mr. Waring organized the Standard Underground Cable Company, and Mr. Marsh become connected with it from its inception, excepting two years he was secretary of the Merchants' Telegraph Construction Company, New York. Mr. Marsh became secretary and general manager of the Standard Underground Cable Company, and in 1891 was elected vice-president and general manager, and is the chief executive officer of the company.

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The Association of Railway Telegraph Superintendents.

Messrs. L. B. Foley, of New York; J. H. Jacoby, of South Bethlehem, Pa., and H. W. Pope, of Buffalo, N. Y., the sub-committee of the Committee of Arrangements of the Association of Railway Telegraph Superintendents, met at Buffalo on March 13, and arranged with Statler's Pan-American Hotel to accommodate the association during its annual convention to be held in that city June 19, 20 and 21 next. The place of meeting will be in a large parlor provided by the hotel, and the rates, we understand, will be $2.50 per day, American plan, to each member attending. The hotel is situated within one block of the main entrance to the Exposition grounds, and it is but eighteen minutes' ride on the electric cars from the heart of the city. This hotel is said to be the largest ever constructed, so far as the number of rooms is concerned, and rooms can be reserved in advance by those who intend to be present at the convention. In view, however, of the great number who will visit the Exposition, it is well to make early application. The sub-committee believe that all members who attend will be perfectly satisfied with the accommodation provided. The Committee on Topics, consisting of Messrs. J. H. Jacoby, chairman, of South Bethlehem, Pa.; C. A. Darlton, of Washington, D. C., and U. J. Fry, of Milwaukee, Wis., announce that many extremely valuable papers will be presented at the convention, the reading and discussion of which will prove interesting to those present, and highly beneficial to the railway telegraph service. While the list has not yet been fully completed, the following gives the title of some of the papers, together with the names of their authors:

"Telephones in Connection with Railroading," by F. P. Valentine, superintendent of telephones, New York, New Haven and Hartford Railroad Co., Boston.

"The Storage Battery in Its Application to the Railway Telegraph Service," by W. E. Athearn, of the electrical engineer's office, of the Western Union Telegraph Company, New York.

"The Inefficiency of the Ordinary Operator; Is There a Remedy?" probably by A. R. Lingafelt, superintendent of telegraph, Chicago, Rock Island & Pacific Railroad, Chicago.

"Underground Wires," probably by G. M. Dugan, superintendent of telegraph, Illinois Central Railroad, Chicago.

"Line Construction," probably by C. H. Bristol, general superintendent of construction, of the Western Union Telegraph Company, Chicago.

"Crossing Alarms," probably by U. J. Fry, superintendent of telegraph, Chicago, Milwaukee & St. Paul Railroad, Milwaukee, Wis.

"The Importance of Little Things in Relation to Telegraphic Batteries and Circuits," by Thos. D. Lockwood, the electrical engineer of the American Bell Telephone Co., Boston.

Professor Freeman, of the Chicago University, will contribute a paper treating probably on the construction of telegraph relay from a scientific standpoint.

Mr. William Maver, Jr., of New York, will also have a paper, the topic of which is not yet announced, and something is expected on high-speed telegraphy. There will be a discussion on "cipher code for general telegraph business."

Already a number of exhibits have been promised for the occasion. Ample space will be reserved for those who desire to enter exhibits, and all correspondence on this subject, as well as any other on which information is required, should be addressed to Mr. P. W. Drew, secretary and treasurer of the Association and superintendent of telegraph of the Wisconsin Central Railroad Co., Milwaukee, Wis.

Some Convention Propositions.

In view of the nearness of the dates for the conventions of the League of American Municipalities, and of the International Association of Municipal Electricians, the former to be held at Jamestown, N. Y., August 21-24, and the latter at Niagara Falls, August 27-29, in the week following, a project is on foot which, if carried out in the manner intended, will insure a most interesting and enjoyable program of fraternal meetings and travel to all members who may attend. An interesting mid-date event, additional to those named, and somewhat similar in character, is that of Municipal Day, Monday, August 26, to be observed at the Pan-American Exposition. It is proposed that the members of both conventional parties meet at Buffalo on the day named, and after attendance there proceed together to Niagara Falls, the League men attending the Municipal Electricians' Convention. At its conclusion it is further proposed that a joint trip be taken down Lake Ontario and the St. Lawrence to Montreal, and there join the Old Time Telegraphers, who will hold their convention at that point on September 3. The plan presents features for a delightful excursion and meeting of individuals of closely identified interests, and will no doubt commend itself to many.

A Ludicrous Blunder.

One of the most ludicrous mistakes made by the telegraph was caused by the loss of a single dot in a telegram from Brisbane to a London news agency. As it reached London it read: "Governor-General twins first son," which the news agency "edited" and sent around to the papers in the following form: "Lady Kennedy, the wife of Sir Arthur Kennedy, Governor-General of Queensland, yesterday gave birth at Government House, Brisbane, to twins, the first born being a son." The telegram arriving in the small hours of the morning, there was no time to check it or refer to Debrett, and it was published by most of the newspapers in London and the provinces and caused an unexpected sensation. Sir Arthur's friends pointed out with conclusive force that some one had blundered, as there never was a Lady Kennedy, Sir Arthur being a bachelor. The repeat message, which followed, read: "Governor-General turns first sod,' referring to a railway ceremony.

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Capillary Electrometer for Relay Purposes.

As is well known, the Lippmann electrometer consists of a glass tube drawn down to a capillary size at its lower end and filled with mercury. If this tube is made part of an electric circuit, says the Electrical World and Engineer, any variation in potential at the terminals of the tube causes the mercury meniscus to move up and down, the extent of the movement of the meniscus measuring the variation in the potential. In a patent issued March 5 to Prof. A. C. Crehore and Capt. George O. Squier, the principle of this electrometer is applied to several new purposes. The space above the mercury is filled with a liquid such as oil and in the oil is located a receptacle, one or both sides of which are formed of metallic diaphragms. These diaphragms are insulated from each other and form terminals of the local circuit, and between them a suitable variable resistance is placed, such as carbon granules. Any variation in the elevation of the mercury in the tubes will cause the diaphragms of the receptacle to be pressed forward, thereby decreasing the resistance through the granular carbon, and vice versa; by placing in the local circuit any device responsive to this variable resistance, the variations in the main circuit may be shown. The meniscus of the electrometer is very sensitive and rapid in its movements, and, therefore, the apparatus is well adapted for use as a receiver for submarine cables. Moreover, it may also be used for other purposes, since it responds quickly to changes of current; a deflection of the meniscus is proportional to difference of potential; it takes no current; the arrangement is dead-beat and responds to exceedingly small voltages.

To Build Alaska Cable.

A submarine cable from Seattle, Wash., to Skagway, with branches to Sitka, Juneau, Ketchikan and other points on the coast, is the project for which has been organized the Northern Commercial Telegraph Company. The company has been formed in London, and has secured a charter so far as Canadian territory is concerned. It is proposed to lay a submarine cable from Seattle to Skagway, taking in Victoria and Vancouver, and all intermediate points along the coast where canneries, mines or other industries are located. A branch telegraph line will also be extended through Dawson to St. Michael. It is possible, too, that lines will be strung up the Skeena and Stikeen rivers.

To Open the Exposition by Telegraph.

The plans for opening the Pan-American Exposition at Buffalo, N. Y., are assuming definite shape. It has been decided that the Exposition shall be opened on May 1. As at that time President McKinley and his Cabinet are expected to be on their way to the Pacific Coast, it is proposed to connect the President's train by telegraph with the Temple of Music. President McKinley, from his special car, surrounded by his Cabinet, will then start the great fountain pumps and will transmit over the wires a message of greeting.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; price, $1, reduced from $1.50.

"AMERICAN TELEGRAPHY," by William Maver, Jr., enlarged and improved; 600 pages; 475 illustrations; clear, lucid and comprehensive in its treatment of the subject, the ranking work of of its kind, and of high practical value to every telegrapher; bound in cloth; price, $3.50.

"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume, of which but a few copies of the first edition now remain, presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; price, $5.

"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones. 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

T. M. B. ASSOCIATION.—Assessment No. 377 has been levied to meet the claims arising from the deaths of William W. Thweatt, at Baltimore, Md.; Martin A. Fleming, at Brooklyn, N. Y.; John F. W. Potter, at New Orleans, La.; Adolph G. Hummel, at New York, N. Y., and David M. Hickey, at Dubuque, Ia.

If the Marconi wireless system of telegraphy should be adopted by our merchant marine, will it be necessary to have an operator on each vessel?

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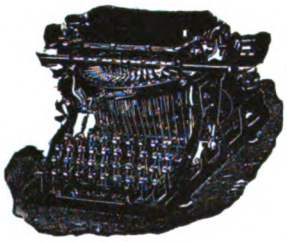
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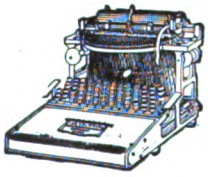


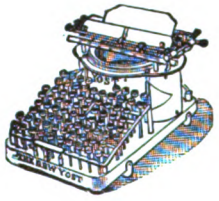
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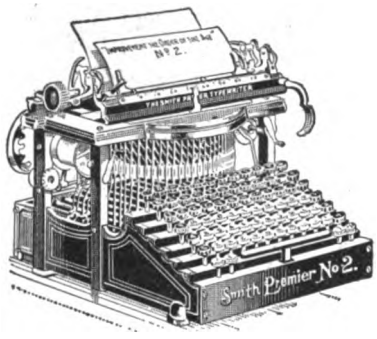
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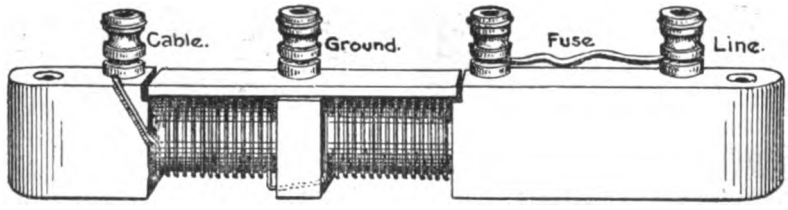
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CHANGES OF ADDRESS.—The address of a subscriber will be changed as often as desired. In ordering a change of address the *old* as well as the *new* address *must* be given.

NEW YORK, April 1, 1901.

Andrew Carnegie.

Andrew Carnegie, the whilom messenger boy and telegraph operator, obtained in forty years vast money possessions. While he accumulated he was a large, generous and just employer of labor, distributing in wages immense sums throughout his career. Now that he has retired from the immediate activities of business, his thoughts and purposes expand in broad measures of philanthropy having in view the permanent benefit of his kind. He does not forget those who toiled in a humbler sphere, and whose united labor contributed to and made his wealth possible, and in a manly farewell letter addressed to these co-workers, he announced the provision he had made for them in a great fund of several millions of dollars set aside for their exclusive benefit when old age or misfortune should overtake them. It was a noble and beautiful action, and will forever stand forth distinctly as an exemplification of the highest type of practical Christianity. Like the rain from the clouds, returning to the earth from whence it came, and carrying refreshment and good in its volume, so he gave back to those from whom in part he derived his power to bestow.

His later act of giving $5,200,000 for library purposes to the city of New York under conditions that must result in the utmost possible good, in line with an avowed purpose which has found expression in many other places in this country, is another great deed that in its magnificent proportions and far-reaching beneficence, alike entitles the donor to the fervent thanks of the community. It is a pleasure to note the spirit in which these superior gifts are generally regarded and have been received. It rises above all barriers that might be raised by politics and by religious creeds, and stands forth as affording an illustrious example of the common brotherhood of man. Mr. Carnegie has pronounced a valedictory at the close of his business life that is resounding throughout the world. The telegraph fraternity salutes its distinguished old-time member.

Technical Knowledge and Promotion.

It is frequently asserted that the operators in large main offices take little or no interest in the technical branch of the telegraph. The highly commendable action, however, of the operators of the Postal Telegraph-Cable Company, at Chicago, Ill., in instituting a series of admirable lectures on telegraphic subjects, and conducted under their own control, would seem to refute that statement, at least so far as that office is concerned. It would appear from this evidence of interest shown, and the success which is attending the movement, that it only needed opportunity and proper encouragement to arouse a wider and more general enthusiasm in the matter on the part of telegraphers. We are informed that a great number of the Chicago force have at these meetings laid the foundation for a thorough technical knowledge of the telegraphic art. It costs time, to be sure, to attend such lectures as these, but it cannot be doubted that it is time well spent.

It is the accumulation of technical knowledge, such as there attained, that will be valuable in the future, both to the individual and to the company he may serve. A well-stocked mind of telegraph knowledge in these days is essential, if promotions are to be expected. Favoritism may help an individual temporarily, but he must eventually fail if he does not personally possess merit. We hope that the telegraph company will appreciate the efforts its employees are making in this laudable pursuit of technical knowledge, and will reward them with deserved promotion as opportunities offer. If the average operator might clearly realize that all future advancement could be made from among those members of the force found to be most capable, and not given to favorites from distant points, who frequently are placed in positions ahead of the entire resident staff, who are really entitled to first recognition, he would then understand that it was only a matter of time when his efforts to make himself more useful to the company would be finally rewarded. The uncertainty of reward is what discourages members of the profession more than any other one thing. What is needed first of all in each office is a system of civil service. Then every individual member of the force could look forward to a betterment of his condition. If he failed to qualify himself to occupy the position next in advance of his own, then he alone is to blame, and must of necessity step aside to permit those better fitted to pass him.

We understand that the lectures referred to above have been brought about through the instrumentality of Mr. E. J. Nally, general superintendent of the Postal Telegraph-Cable Company at Chicago. Mr. Nally himself is yet a young man, and began his telegraph career as a messenger boy 25 years ago. His experience has been such that he must realize fully the conditions that confront every young man, and no doubt he is in close sym-

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pathy with those below him. Like every other telegraph official, he must of necessity be constantly in search of good men to fill vacancies. He knows the value of education, of telegraphic technical knowledge, the proper keeping of telegraphic accounts, of being neat in personal appearance and exhibiting a spirit of courtesy to every one, qualifications essential to aspirants for promotion. A little admonition, direction and word of encouragement from such a high official source would not be without beneficial effect among employees.

In future, promotions in Mr. Nally's district, at least so far as Chicago is concerned, might be made from among those who are now devoting themselves to study, and, consequently being fitted for advancement; he can create an esprit de corps among the men that will rise to a spirit little short of enthusiasm. Up to a few years ago it used to be customary whenever a capable telegraph engineer was needed, to look to Buffalo, N. Y., for such an one, where at that time an electrical society of international reputation flourished. We hope that a like reputation may fall upon Chicago.

A Reprehensible Practice.

Printed circulars emanating from St. Paul, Minn., which call attention to the case of a destitute telegrapher in Omaha, Neb., for whom financial aid is solicited from the telegraphic fraternity at large, and stating that the columns of TELEGRAPH AGE would be used to account for all money received in the form of a published list of donors, is being circulated throughout the country. It need hardly be said that we were never communicated with or consulted in regard to the issuing of this circular, which, under no circumstances, would have received our sanction. TELEGRAPH AGE is made therein to appear as if its approval of this circular had been obtained, while on the contrary it knew absolutely nothing of its appearance. Those who engage in such undertakings should at least be careful in their premises and not make misrepresentations, and thus convey abroad false impressions, however unintentional. TELEGRAPH AGE can not and does not for obvious reasons engage in affairs of this kind. Whatever their merits, such cases are entirely too numerous to even receive mention in these columns, and should more properly be met by local action.

Another Franchise Needed.

Some time ago, when the Western Union Telegraph Company endeavored to string its wires in Toledo, O., for the purpose of conducting a district messenger service through the medium of the usual call box system, the company was enjoined by the city officials from completing the work, it being asserted that it would be necessary for the company to obtain a proper franchise from the City Council; that the franchise which permitted the telegraph company to do a regular telegraph business did not cover the messenger call box service.

The Telegraph Company won the case in the United States Circuit Court. This favorable decision was reversed in the United States Court of Appeals at Cincinnati, O., on March 5.

Improved Automatic Telegraphy.

Mr. Patrick B. Delany the electrical engineer and expert telegrapher of South Orange, N. J., has recently greatly improved his automatic telegraphic system, and rendered its operation one of extreme flexibility. This automatic system, as originally constructed, required that the messages be prepared on tape by specially constructed punching machines, after the manner of the Wheatstone system. This practically necessitated the learning of a new trade, and telegraph officials did not, therefore, take kindly to such sweeping changes in their mode of operating the wires. Mr. Delany's improvement consists of inserting in an ordinary telegraph circuit (local or main) a simple punching device, which is operated by the Morse key. The American telegraph alphabet, which is made up of dots, dashes and spaces, or any other telegraph alphabet, can be used by this system. The tape is punched with two rows of dots, which, when run through the automatic transmitter, are received either by sound at the distant point, or, if a speed beyond the limit of typewriter receiving be required, messages may be recorded on chemically prepared tape, in the usual dot and dash style, at 2,000 words a minute if necessary. It is claimed that by this system every Morse operator in the country is at once available as a machine operator, his work being exactly as in operating a circuit in the ordinary way. Moreover, the perforating machine can be worked hundreds of miles away from the sending key, in circuit with ordinary relays and sounders, so that branch or outlying offices can perforate their messages at the distant central or relaying station with the same facility as though the key and punching machine were side by side. This will enable the accumulation by ordinary Morse transmission, of business from all branch lines at central points of distribution ready for forwarding over trunk lines by the rapid-machine system. Taking advantage of the static capacity of the line, which was previously thought to be a detriment to good working, the recording of the messages in regular Morse dots and dashes is effected without the slightest "tailing" or running together of signals.

GOVERNMENT TELEGRAPHS.—The United States Senate, just before adjournment, adopted an amendment directing the Postmaster-General to make an investigation of the question of a postal telegraph system and report his findings to Congress, together with the probable cost of establishing the system.

Mr. C. M. Baker, general superintendent of construction of the Postal Telegraph-Cable Company, Chicago, Ill., some time ago received the following message, which he thinks is worthy of record, to show what ludicrousness may result from the improper dividing of a word: "Trouble on No. 2 three miles north Rat on wire, shot off."

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The Telegraph Monopoly.

We are indebted to Mr. S. B. Gifford, superintendent of the Western Union Telegraph Company, Syracuse, N. Y., for the following "friendly criticism," as he terms it, of the telegraph press service as it existed throughout central and western New York in 1849. Each paper at that time paid the large sum of four dollars per week for its reports; for a while only two dollars; still they were not happy. The clipping is from a western New York paper, dated April 2, 1849. At that time these press reports monopolized the telegraph line daily for an hour for the evening and another hour for the morning editions. Telegraph offices usually closed for the night at the conservative hour of 8 o'clock.

"The charges of the telegraph company have become so onerous that we, together with the other papers in our city, have refused any longer to submit to them. Ever since the reports have come over the lines we have taken them, and paid out a large amount of money—and what have we received in return? Absolutely nothing, in comparison with the means expended. Now and then we would receive news worth the dollar paid, but as a general thing, with the exception of the markets, the operator in New York has sent us the most frippery things that can be well imagined, while at the same time the report has been so incorrect, especially where figures were concerned, that it was useless, if not dangerous to the interests of our business men, to publish it. The whole system is one of those infamous and grinding monopolies which no man can submit to, and we have determined to throw it by the board at once.

"When General Taylor's inaugural was sent over the lines, it was in such a rascally way that we supposed the wires were absolutely drunk, and we were obliged, out of respect to the President, to make sense of nearly every sentence, and when the speech came by mail, our compositors preferred to distribute the wire report, rather than be at the labor of correcting it—and so it has been with almost everything else that comes by this cormorant concern. We have borne the imposition and the impudence of this line until forbearance has ceased to be a virtue, and now we go the death against the whole concern. The Buffalo papers pay this line, we are credibly informed, but $3 per week, enough, in all conscience, for the perfect trash received. We sent a respectful remonstrance against the extra price we were compelled to pay, and what was the reply? Was it gentlemanly? Was it courteous? Was it in the spirit of accommodation? By no means. We were told to take it or let it alone. Very well; we shall let it *alone*, but our readers need not fear that they will by it lose the latest reports from New York. The papers which we get by mail in the morning contain all that we receive by telegraph in the evening, so that we shall have precisely just what we get now.

"Our citizens are as much interested in this matter as we are, and we urge them to subscribe to the stock now being solicited for Bain's Telegraph. With that we shall have no silly mistakes. The rollers are so marked that it conveys an inky tinge to the impressions, which renders every letter perfectly intelligible, and an operator who learns the letters can never make a mistake, and a whole column of matter can be sent in less time than it takes this line to send a *stickful*. Speed and accuracy are the distinguishing features of Bain's plan, and more than all, the communications, full, correct and to be relied upon, are less than one-half the price charged upon the mean, incorrect, partial and one-sided miniature affair which has so long gulled the press and the public out of their money. We ask our readers to sustain us in the stand we have taken against these blood-suckers, and they will, since we take the pains and go to the expense of keeping our men up at night, that they may have precisely the same news they get now, only in a different shape, and we hope the whole western press will join us in breaking down this execrable power, which would grind our souls, if it can but coin money. Down with it, and up with Bain's line, that these Jew money-brokers may learn their places, and cease to rob us of our hard-earned gains."

Mr. Gifford has also lately forwarded to the Telegraphic Historical Society of North America a message blank of the Cornell line, bearing the date of October 12, 1849; also the printed annual report for the year 1851 of the New York, Albany and Buffalo Telegraph Company.

The latter document is indeed a unique statement, and conveys, in the figures presented, more impressive in their meaning than could be expressed by words, the exceedingly narrow limitations of the telegraph at that early period of its history. Extracts therefrom will be of interest to our readers. It appears there were but twenty-two offices constituting that telegraph system between New York and Buffalo, which were as follows, together with their receipts and disbursements for the year 1851:

	Receipts.	Disbursements.
New York	$14,245.03	$5,759.42
Carmel	80.66	338.35
Ponghkeepsie	539.08	503.62
Red Hook	31.13	25.78
Hudson	736.35	507.17
Valatie	69.99	46.66
Troy	2,060.52	971.87
Albany	4,331.99	2,259.97
Schenectady	761.24	426.16
Amsterdam	92.81	113.15
Canajoharie	60.36	70.38
Rockton	408.60	338.34
Utica	1,409.86	984.20
Rome	642.31	323.46
Oneida	100.12	173.84
Syracuse	1,688.83	786.58
Auburn	877.43	498.13
Geneva	861.95	499.93
Canandaigua	721.16	354.13
Rochester	2,095.94	1,173.81
Batavia	632.34	356.17
Buffalo	2,876.52	2,006.96

In addition to the above, including cash on hand on January 1, 1851, of $3,035.47, a sale of surplus iron wire for $619.12 and a balance of account with other lines of $114.09, the entire amount credited

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to receipts is swollen to the sum of $39,092.95. Yet among the general disbursements an item appears for *extraordinary expense for new posts* of $8,486.66, so that the expense account is brought up to a figure exceeding that of the receipts. This is explained, however, by the remark that the money had been expended in a partial reconstruction of the line.

It further appears that these figures of a year's business are less than in the years immediately preceding, due, as President T. S. Faxton, of the company, states, to the fact that opposition had been encountered in the competing "Bain" and "House" lines, which, it seems, had made inroads into the "Morse Monopoly," as this line was called. With a complacency of official utterance quite in keeping with that of the present day, the matter is dismissed with the remark that old customers had gained nothing in patronizing the rival lines and were renewing "their business acquaintance with us, more than ever assured that ours is the line that it is their interest to patronize, and as a consequence we have now with us four-fifths of the press between New York and Buffalo."

A comparison is challenged "with any existing means or mode of transmitting intelligence in the United States," for it is cited that "during the year 1851 the offices at Buffalo, Rochester, Syracuse and Utica were in direct communication with New York 306 out of 313 working days, and with the offices at Albany and Troy 309 out of 313 working days." The construction at that time of the telegraph line had been so perfected that it was no longer necessary to relay Buffalo business destined for New York at such points as Albany, Troy, Utica or Syracuse.

The News Associations and the Inauguration.

Covering the ceremonies incidental to the inauguration of a President is usually considered a pretty big contract by newspaper men, but the work on March 4 was accomplished by The Associated Press without apparent effort.

Col. Charles A. Boynton, superintendent of the Southern Division at Washington, had charge of the work and it was accomplished without a hitch.

The Associated Press corps consisted of two desk men and ten men outside. One minute after the President took the oath of office the news was flashed over the wire to every corner of the globe.

As is usual in such cases, The Associated Press secured the inaugural addresses in advance and they were all in type in the newspaper offices using the service long before the news of the day was put on the wire.

The Publishers' Press and Scripps-McRea associations also made fine records in covering inauguration events. They too had sent out the usual advance copy containing addresses and general descriptions. Besides running an account of the parade and ceremonies, frequent bulletins were flashed on important events of the day, gathered by members of the staff distributed at various points. The work was under the direction of E. L. Keen, the efficient Washington manager of the associations.

THE TYPEWRITER IS INDISPENSABLE.

BY M. W. RUSSELL.

An axiom in the telegraph business is that the typewriter has come to stay. This does not mean that in every office it will stay with its owner, for the borrower, who does not say "By your leave" is ever in evidence wherever the machine is. True, this simple tribute to the person who uses a machine, but neither owns nor rents one, intimates the fact that a man is not always happy in this business, even with a valid and complete title to a typewriter. No; nor is it always the borrower only, for often it is the vandal whose presence is manifest.

But to typewriting telegraphers there are also other drawbacks, so it is claimed, which take precedence to these trifling annoyances. They rank, by want of a remedy against them, or in point of their importance, to the "man behind the mill."

To enumerate, there are no more "gilt-edge" telegraph operators, and there are no more "reputations" to be had. Whoever has been at a telegraph desk for the past quarter of a century can look back to the days when "Bob" Swiftyshift or "Tommy" Copperplate worked this or that circuit somewheree, but whose famed sending and elegant penmanship is no longer of repute among the craft. Nor have they had any successors to the laurels that they earned. Their names, and none others, in the long list of their peers, are mentioned no more where "shop talk" is most engaging. To-day the fraternity is quite barren of these telegraphic heroes, notwithstanding telegraphing is done faster and better than ever.

The machine and the "code," though, has made a difference. There is no more limit to what is expected of a man in command of these two advantages. He cannot work so fast now as to excite wonderment. He can no more enjoy a wide reputation because he cannot shine far. His searchlight has gone out. He labors under a mechanical eclipse. Besides, he cannot use a pen in the same old way, if ever he was expert with it; typewriting has concluded that issue, as between it and the pen. For it is a truth that constant use of the machine spoils one for "slinging" a pen copy with any envious art, such as used to be common to the telegraph profession. The typewriter is mightier than the pen; it is the simple rule of the "survival of the fittest," although it is a fact that some who use it now never did and never will do much with a pen. They never have used anything but a machine.

For example, a young aspirant for a position in a large commercial office was recently asked the usual question: "Do you use a typewriter?" He answered, innocently enough, "Yes; I couldn't copy a message with a pen." He got the job. Will the time come, by and by, when this question will be reversed, and a would-be employe be asked if he can write with a pen? That possibly is what the situation promises for the future.

There are experts, though, who say that punching continually at the "buttons" on keyboards has

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done damage to their "sending" abilities. It has, they think, spoiled the character and elegance of their "Morse." Some others go even further and declare, whether in earnest or not, that they can tell the "make" and sort of a machine a man uses to receive on by his style of sending.

It is true that a man's "sending" is, or used to be, somewhat characteristic of his penmanship, as well as of much of his other individuality. Therefore, possibly, this "transfusion of blood" has been transferred to the typewriter. But whoever accepts this theory as settled in the affirmative must admit then that there are some pretty crotchety old "mills" in service nowadays. It is a semi-correct statement, however, that in these times but little sending is heard that is a "thing of beauty and a joy forever." It did not used to be so. What has really made the change? It is to be hoped it is neither the typewriter nor the "code" that has done it, any assertions to the contrary notwithstanding.

Perhaps, though, there is greater merit and less of the pessimistic in the more general claim of typist-telegraphers, that the telegraph employer ought to offer better inducements and higher reward, in consideration of these sacrifices of theirs, and for legitimate repairs, incidental to this improved method of receiving. Any way, the machine is no toy, and the manufacturers are not holding out irresistible inducements to telegraphers to buy. New machines are out of the reach, by reason of high prices, of the average telegrapher. If it were not for the second-hand dealers of good reputation for fair and square dealing, there would not be so many machines used in the telegraph business to-day.

Still, there is at least one consolation in this connection, and that is, a standard make of typewriter will last many years, and it is better to keep it in good order even at one's own expense, than to either be without it or permit its gradual conversion into junk by neglect or misuse. Nor is this all the good that can be said of the machine. It is also an educator in itself, and its use has elevated the profession in the sense that it has compelled many of its members to learn the proper use of capital letters, punctuation marks, paragraphs, etc., where before they were ignorant on these subjects and careless of their importance. They have been obliged to think out the rules of writing as they appear best when printed, and then to take pride in practicing them rightly.

Furthermore, a man is no longer humped over a tight little corner behind a glass partition, dividing the desk, with his nose yoked to his pen, while receiving, as it used to be; but he sits erect and looks and feels like a man. The sounder has by simple but ingenious devices been brought up into range with his ear.

Contemporaneous with these advancements, the other furnishings of an up-to-date operating room have been hastened by the demand and superiority of the typewriting system of receiving, until it is palatial compared with those before the advent of the machine.

These improvements, pertaining particularly to light, ventilation, convenience and cheerfulness, are quite as valuable to the employe as to the company, and as these conditions never existed before the typewriter came, their welcome presence now may be reckoned as a sequence to its adoption into telegraphy. These changes mean better health and longer life to the office worker. In fact, already the fraternal life insurance assessments show a lessening of the number of deaths by consumption.

Ay, with these blessings, and better ones, the time may yet come when the unheard of thing will happen—that of a telegrapher dying of old age!

Any way, it is to be hoped that this timely prestige of the typewriter, with the fairer prospects of longevity, will induce in members of the fraternity sober thoughtfulness of themselves for the future and of those dependent upon them, in preparation for the care of their later years. This effect, if vouchsafed, will be a crowning triumph of the typewriter in telegraphy.

Government Control of Telegraph Lines.

Mr. Thomas F. Clark, of New York, vice-president of the Western Union Telegraph Company, testified before the Industrial Commission at Washington, D. C., March 14, concerning the relations of the telegraph to the public. He devoted much of his time to the consideration of the wisdom of Government ownership of the telegraph. He expressed the opinion that those who advocate Government control base their advocacy upon the fact that the Governments of Great Britain, Belgium and Switzerland control the telegraph lines in those countries, but he argued that the conditions, geographic, social, administrative, are so entirely different as to render useless in this country deductions drawn from considerations in those countries.

He first compared the geographic areas, showing that where there are only 67 people in the United States to each mile of wire, there are in Great Britain 130 people to the mile, in Switzerland 220, and in Belgium 321. He said that in the United States there are 1,118,086 miles of wire, and 1,585,267 miles in all of Europe.

Mr. Clark mentioned the fact that the telegraph lines in the United States cover many sparsely settled sections, saying that while the returns from such sections are comparatively small, the cost of construction and maintenance is greater than in more densely populated sections. In Montana, for instance, with a population of only one person to the square mile of territory, there are two hundred and ninety-two telegraph and telephone stations.

All told, he said, there are 39,000 places in the United States reached by the telegraph companies, while in Great Britain there are only 10,816 places thus reached. In this country almost fifty per cent. of the post offices have telegraph connections, while in Great Britain only about one-quarter of them are thus equipped.

While admitting that rates on local messages in

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Europe are lower than in the United States, Mr. Clark contended that on through messages they are incomparably higher. He pointed out that in Europe addresses and signatures are charged for. As a comparison in long-distance messages, he pointed out that an ordinary message covering ten words of text would cost about $2.41 if sent from London to St. Petersburg, a distance of 1,774 miles, while a message sent from New York to Galveston, about the same distance, would cost only 75 cents.

The capitalization of the Western Union Company, Mr. Clark stated, amounts to $703 per mile of poles, or $141 per mile of wire. In Great Britain the capitalization was about twice as great.

Referring to the consolidation of the various original lines into the Western Union system, he said it had been necessary, in order to secure unification of rates and to facilitate through business. The result also had been a vast reduction in rates of transmission, the present maximum rates being in many cases not more than one-tenth of the rates in 1866. Now the rates are as reasonable, he said, as they could be made consistent with good business management.

He said it could not be expected that the owners of telegraph lines would sell at the mere cost of production. They, like the owners of any profitable property, had a right to expect something for good will, etc. He also argued that the cost of construction of a telegraph system is not confined to the lines throughout the rural districts, but is due largely to city conditions—the construction of buildings and underground conduits and the securing of other terminal facilities. He estimated that there had been spent upon the Western Union system since 1866 not less than $50,000,000 or $60,000,000, entirely outside of construction.

He quoted the Chancellor of the Exchequer of Great Britain as saying, in 1893, that there had been a loss to the Government of about $22,000,000 on the telegraph system of that country, and stated that this deficit now amounts to about $40,000,000. If there had been such a deficit there, what, Mr. Clark, asked could be expected in a country like the United States, twenty-five times as large?

Mr. Clark claimed that the Western Union rates were reasonable and the result of very careful study and adjustment. He thought any radical reduction would be followed by disaster to the stockholders and would result in no benefit to the public at large. There certainly would be a deficit, and in case of Government ownership the burden simply would be shifted from the stockholders to the people.

"Didn't you meet the rates of the Baltimore and Ohio telegraph line when it was in operation?" was asked.

"Yes," the witness replied, "and the Western Union stopped dividends, while the Baltimore and Ohio Co. became bankrupt."

Mr. Clark said that in carrying the Government business between the United States and Cuba, the International Company, which is under the control of the Western Union, and which carries Government business free of charge, had carried more messages for the United States in one year than it had carried for Spain in thirty years.

Mr. Clark closed his statement with another reference to Government ownership, saying that unless there could be a permanent civil service public ownership would result in a serious deficit, and he believed that no good would be served in the end.

What Two Telegraphers Accomplished.

Without regard as to whether or not Ottawa was the first city to adopt electricity for the propulsion of street cars, it should be kept in mind that what constituted the great value of the work done by Ottawa in electric railway enterprise, related more particularly to the snow problem confronting the Canadian cities between Kingston in the west and Quebec in the east. Prior to 1890 it was generally considered an absurdly ridiculous proposition to attempt the operation of wheeled cars upon tracks in the streets of Quebec, Montreal or Ottawa, which cities experience greater winter storms and depth of snow than any other cities upon this continent. Looking back to 1890, when Messrs. Thomas Ahearn and W. Y. Soper (two well known expert telegraphers), courageously tackled the problem, it is now somewhat amusing to recall the sympathetic predictions made by all classes of citizens of the probable result of the undertaking, the conclusion being that it was impracticable and would surely result in financial ruin and disaster. Our neighbors in Montreal were particularly interested, and eagerly watched and awaited the result of the first winter's operations here. The managers of the Montreal Street Railway Company visited Ottawa during the progress of snow storms, and became au fait with the modus operandi of clearing and removing snow. The good example set Montreal by Ottawa was immediately acted upon, and the horse car entirely disappeared from the streets of that city during the following year. This debt of gratitude was gracefully acknowledged a few years ago in the Railway Committee of the House of Commons by the Hon. Mr. Brodeur, the present Speaker of the House of Commons, who stated that to the example and success achieved by Ahearn and Soper at Ottawa was due the fact that electric cars were adopted in Montreal. Mr. Brodeur spoke authoritatively, being for many years one of the solicitors for the Montreal Street Railway Co. Thus was a generally admitted physical impossibility overcome by Ottawa enterprise and talent.—Ottawa Evening Journal.

The annual proceedings of the Gold and Stock Life Insurance Association, of New York, have been published in pamphlet form and is being distributed among the members, of whom a full list is printed. The various reports are presented and the constitution is given in full.

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What Marconi Says.

Signor Marconi, who is now in New York, makes the following statement as to the purport of his visit to this country:

"I am here purely on a business trip, and, as I have a great deal of work before me, and as my stay is limited, my time will be fully occupied.

"One of my chief objects in coming here is to establish and equip stations for the adoption of my system of wireless telegraphy, so that incoming and outgoing ships can be communicated with from great distances, and in the event of distress. Just where these stations are to be located I cannot say until I have consulted the charts.

"The expense for establishing these stations will be borne by my company—the Marconi International Marine Communication Company (Ltd.)—which was formed about a year ago in Brussels. The company is capitalized at £350,000.

"Then there is the Marconi Wireless Telegraph Company, in which I own stock to the amount of $300,000. I do not intend to lose control of my invention. This latter company owns nearly all of the stock of the first company.

"As soon as stations have been erected here merchant and naval vessels can be equipped with the necessary appliances for communicating with each other or the shore. These equipments can be completed at the rate of one vessel a day.

"Among the wireless telegraph stations already established on the other side are those at Portsmouth, St. Catherine, Isle of Wight; Haven Pool, Dorset; Portland and Portsmouth, the last two by the Royal Navy; Start Point, near Plymouth; the Lizard, Holyhead, Wintersea, North Foreland, and three on the Irish coast and one in Scotland.

"Thus far the system of wireless communication is in use on forty British naval vessels, while fifty more will be equipped shortly; twenty-five Italian, three German and five Belgian. Very few merchant vessels have as yet adopted the system. I hope to equip many merchant vessels of all nationalities as soon as we get fairly started here, and also some ships of the American Navy.

"There has been considerable correspondence between the United States Government and myself, and also some negotiations.

"Does the electric wave by my system pass over land and water or through them? I do not know. It is as yet a mystery.

"I made my first experiment in 1896 and the first public test in 1897, but I know only a little about it as yet. Four years hence I hope to know more—much more. This I know, that my system is my own. Others may have their systems, but if others encroach on my system there will be litigation.

"Improvements are continually being made. When I began my experiments I had to elevate my instruments twenty feet to send a message one mile. Now I can send a message two hundred miles with an elevation of one hundred feet. I hope before long to reduce this so that a message can be sent or received two hundred miles from a ten-foot elevation.

"There is no difficulty in transmitting messages between ships, or the shore and ships, even though they are located in clusters, for fear of crossing currents or receiving each other's messages. Any two points can communicate when the instruments intended to be used are attuned to the same key. By my system messages from five different vessels or points can be received simultaneously at one point. Neither does it make any difference whether the earth space between points of communication are plain soil, rocky, or have a mineral formation."

Telegraph Wires as Weather Prophets.

According to Dr. Eydam, a German physician, there are no more reliable weather prophets than telegraph wires. This novel discovery was made by him in the following manner: As he was waiting for a train at a country station he heard a shrill sound, which was made by the wind as it passed through a network of nearby wires. At once the doctor remembered that he had frequently heard a similar sound either immediately before or after a storm or a heavy fall of rain or snow, and it naturally occurred to him to try and ascertain whether there was any connection between the sound and such changes in the weather.

As a heavy shower of rain fell within forty-eight hours after he had heard the sound at the railroad station, he concluded that there was such a connection, and he then determined to investigate the matter thoroughly. As a result he now maintains, first, that any unusual disturbance in the telegraph wires is an infallible indicator of bad weather, and, second, that the nature of the changes in the atmosphere may be learned from the sound which the wind makes when passing through the wires.

Thus, a deep sound, he says, which is of considerable or medium strength, indicates that there will be slight showers of rain, with moderate winds, within from thirty to forty-eight hours, and, on the other hand, a sharp, shrill sound is the sure token of a heavy storm, which will be accompanied by much rain or snow.

Heliograph Love Messages.

A series of heliograph messages flashed between Miss Anna Gardner, a resident of Dartmouth, Mass., recently visiting at Bradford, N. Y., and her fiancé, who is an operator in a railroad signal tower a few miles distant, has caused considerable consternation among the residents of Bradford township. For some time past, when the weather was bright, a strange light has been observed flickering in the sky. Many looked upon it as an omen that the end of the world was near. Revival meetings resulted and persons gathered about the village in awe-stricken groups to watch the supposed supernatural phenomenon. Then, when the people were pretty well worked up over it, it was found that they had simply been watching heliograph love messages between Miss Gardner and her fiancé, who had instructed her in a system of signals.

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CABLE LAYING IN WAR TIMES.

BY LIEUT. R. SCALLAN, R. A.

An invention has lately been submitted to the British naval authorities which, if accepted, will undoubtedly prove an important factor in future naval warfare. The designers are Lieutenant Crutchley, of the Royal Naval Reserve, and Mr. Snell, a prominent engineer, who have devised an improved method of laying submarine cables at a much increased rate of speed. By means of this invention a warship or transatlantic liner can be used to lay a cable of special design at the rate of twenty or more knots per hour. As will be seen, it requires very little alteration to adapt these vessels to the purpose, and the slow-going special cable boats at present in use will be superseded.

One can easily realize how important it might be to a maritime nation, especially one with vast colonial possessions, or which relies for protection on a powerful fleet, to be able to lay a comparatively short cable, of from 500 to 1,000 miles, in a very short space of time, and withal so secretly and unostentatiously that the enemy would never suspect, until too late, that such communication had been established. Of course, one of the very first results of a declaration of war nowadays would be an attempt on both sides to destroy or interrupt any means of communication, more particularly telegraphic communication, that might prove useful to the enemy.

Messrs. Snell and Crutchley step in to the rescue with a magnificent scheme, which would seem to lay at rest the vexed question of the transmission of orders, even if the enemy has succeeded in cutting existing cables.

The differences between the present and the new system of laying submarine cables are many and varied. To start with, the new cable is much lighter and less expensive than the ponderous affair used for spanning the Atlantic. Three hundred knots weigh only 180 tons, while the price averages only $300 per knot. Coiled on a large drum, these 300 knots, ready for use, can be stowed away in a tank or hold about the size of a large double boiler, so that a good-sized ship, such as a cruiser or a liner, could easily find room for two such drums, one in the aft and the other in the fore hold. Here would be 700 miles of cable, weighing but 560 tons, stowed away ready for immediate use. Another plan is to carry the cable on small drums holding but 40 knots each and joined together; these drums possess the merit of being light and portable and also easily put away.

The paying out of the cable is accomplished very simply and ingeniously, engines of 150 horse power being utilized to revolve the large carrying drums and giving a delivery speed of over twenty knots per hour. Now, it is necessary, in laying a cable, that a certain amount of slack should be available, so that the cable can accommodate itself to the frequent inequalities of the ocean bed, and not become tightly stretched from one prominence to another, thus throwing an excessive strain on the paying-out machinery. Accordingly, for a length of 300 knots, a bight or slack of 2,000 feet is allowed, and is carried on a pair of drums which are stationed midway between the stern and the main drum. The cable passes from these bobbins to a revolving pulley at the ship's stern, which literally ejects the wire at a speed which can, if necessary, be made greater than the rate of delivery from the tank. A controlling apparatus is attached to the slack-carrying drums to prevent the using up of the bight too suddenly, until the strain becomes sufficient to overcome this resistance. Before the 2,000 feet have been absorbed in this way it is evident that the ship's speed can be diminished a little, so that the excess rate of delivery will soon again accumulate sufficient slack.

The results attained by this system in actual work are said to be marvelous; of course, there is nothing out of the way in the entire design, but usually these wonderfully simple ideas, though brilliant in theory, seem to collapse when put to a thorough test in practice. The Snell-Crutchley invention, however, does not appear to belong to this class, and the inventors have demonstrated satisfactorily that a ship able to make 20 knots can easily pay out 21 knots of cable, the extra knot being compensation for the uneven floor of Neptune's home.

A simple calculation shows that communication can be established by these means between points 700 miles distant, within less than forty hours, and the cable once laid would be permanent, at least as cables go. The secrecy of the stratagem also would insure its success, for, as before said, a cruiser or other fast vessel can be quickly fitted for the work at very short notice. Nothing unusual is visible to a passing ship, save perhaps what would look like a taut rope trailing astern, and even that could be concealed without difficulty. And, to crown all, the work can be as well done at night as in the daytime, requiring, as it does, little or no supervision.

Loan Associations Consolidate.

The Serial Building Loan and Savings Institution and the Electric Building Loan Association are about to be united under a single management. The combined associations will have headquarters in the offices now occupied by the Serial Building, Loan and Savings Institution, located at 195 Broadway, New York. The preliminary steps have been agreed upon by the boards of management of both associations, and the details are now being worked out by committees from both boards. When this is done it will be necessary to have the act or matter ratified by the members of the Electric Building Loan Association. The consolidation will greatly strengthen the two associations.

The Scientific American of March 23, contains a descriptive illustrated write-up of the Burry Page-Printing Telegraph system. This is the invention of Mr. John Burry, electrician of the Stock Quotation Telegraph Company, of New York, which has given great satisfaction in financial circles in disseminating Wall street gossip.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

Southern Pacific Telegraph System—Sacramento Div.

The Sacramento Division is to the Southern Pacific what the San Joaquin is, the great connecting link uniting the East and North to the terminus—the Western Division. Starting at Sacramento and extending eastward until it strikes the Salt Lake Division, or "Ogden Route," at Wadsworth, Nevada, some 200 miles and northward from Sacramento to Dunsmuir, where it strikes the Oregon Division, or the "Shasta Route," over 200 miles distant, it passes through the most picturesque and wild country in the far west. This division can truly be called the division of snow sheds and precipices. The snow often attains a depth of thirty feet over the Sierra Nevadas, necessitating some forty miles of snow sheds between Reno and Sacramento. The elevation of Summit, the highest point, is about 7,000 feet, and immense "helper" engines are used to assist the trains over the heavy grades. Many points of interest lie on this division, notably, Cape Horn, Donner, Tahoe Lakes, Sacramento, the State Capitol, etc. There are upwards of seven hundred miles of track on this division, and the great number of trains, and the mountainous country through which it runs, calls for many night telegraph offices, probably more than any other division on the road.

The head of the telegraph department of this division is Mr. H. B. Breckenfeld, chief dispatcher, Sacramento, who has been with the company over thirty years.

The several sections of this division are operated as follows:

Mountain District: F. A. Edinger, first trick; J. W. Fitzgerald, second trick; Louis Geiger, third trick. Valley District: G. L. Duden, first trick; J. S. Quire, second trick; J. H. Whited, third trick. Oregon District: George Nevins, first trick; H. Carpenter, second trick; J. J. Blaney, third trick. Colfax District: Wm. E. Norris, first trick; C. B. Patrick, second trick; Frank E. Jones, third trick.

Copyists are: James McClintock, J. M. Botts and Chas. J. King.

Mr. W. R. Birt is in charge of the multiplex instruments, and Thomas C. Buckley is the operator in the machine shops.

Operators in the freight office are: Wm. Cohn, Fred. R. Glover and Edw. L. Sharp.

A number of the force are old commercial operators, among whom are Messrs. Whited, Cohn, Birt and others. The telegraphers on the division comprise the following:

Penryn—A. G. Love, C. T. Jones; New England Mills—Mary V. Mitchell; Blue Canon—L. Fingland; Dutch Flat—Edward Duffey; Gold Run—A. N. Davison, H. Lucas; Cascade—A. R. Merrithew, W. H. Richards; Summit—J. N. Dockham; Truckee—J. H. Atkins, days, J. B. Cantwell, nights, W. J. Roberts, R. A. Jones and Clark Tilton, assistants; Boca—W. Hebard; Floriston—Geo. E. Wapple, W. H. Thomas; Verdi—E. L. King, days, G. L. Cleveland, nights, J. H. Jacobs; Wheatland—J. E. Blackford; Coburn Junction—Chas. A. Nelson; Blacks—M. C. Gorton; Biggs—J. A. Foster, T. F. Ruff; Woodland—Ira A. Morris, Chas. A. Sebring; Costella—H. O. Wickes; Willows—W. W. Scott, H. H. Houston; Kiswick—D. B. Born, agent; O. T. Stackpole, cashier; Dom. Ogara, first trick; T. C. Morebeck, Jr., second trick; Folsom—J. Kinney, M. J. Ferry.

Lack of space prevents a more complete list in the present issue.

EBENSBURG, PA., NOTES.

Mr. Kelley, the genial agent for the Pennsylvania Railroad Company, has just returned from a pleasure trip through Florida.

Miss Julia L. Brown is the very obliging manager of the Western Union.

The Bell Telephone Company is represented by Miss Mary Evans, day, and Miss May Brown, night, operators.

Mr. A. G. Young looks after the interests of the Long Distance Telephone Company.

Mr. C. F. Holcombe acts as manager and lineman for the Postal.

CLEVELAND, O., WESTERN UNION.

Indications point to a removal of the operating room to the floor below the present quarters. This change is made necessary by the demand for more space.

Arrivals: E. L. Bloomburg, from Boston; O. T. Donnelly, from Detroit.

Departures: A. C. Bennett, to Western Union, St. Louis, Mo.; C. R. Zink, to Pittsburg; Howard Coe, to the Long Distance Telephone Company, Cleveland, O.; M. Caspery, to Chicago; D. F. Baker, to a broker's office; Messrs. Brenton, to Wellsville, O., and Fauch, to Conneaut, O.

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NEW ORLEANS, LA., WESTERN UNION.

During the absence of his father, who is quite ill, Robert Mobley is acting manager at the Western Union stock landing branch.

Mr. P. A. Moake is now a pool-room operator, having accepted a position with the Royal pool-room.

The many friends of Mr. Garrett Winter, late manager of the Postal at New Iberia, La., and one of the oldest telegraphers in this section, will be sorry to hear that owing to illness he has been obliged (it is hoped only temporarily) to relinquish the key. Mr. Winter passed through New Orleans en route to his home, stopping over here for a few days.

Among the Western Union managers along the Southern Pacific road, there are few more popular than Messrs. Fountain, of New Iberia, and Sims, of Crowley.

There is considerable baseball talk on the part of night and day forces.

The sympathy of this office is extended to Mr. John A. Galbreath, whose son, Frank A., aged 34, died on March 16.

The personnel of the Cotton Exchange branch office is as follows:

P. Leloup, manager; E. A. Freidmann, on New York commercial news department. Operators: **W. J. Johnston, U. Mauberret, W. K. Wimberly,** G. F. Lonnegan, P. A Moake, J. A. Galbreath, Jr., H. A. Bell, F. G. Carbajal, R. A. Arrington, C. R. Weidemann, E. A. Dennett, Mr. Nichols, O. C. Johnston, S. J. Garland, Mr. Jones, Robert Maloney, R. Adorno, W. A. Pollard, T. H. Chancellor.

PHILADELPHIA, PA., WESTERN UNION.

It is with feeling of deep regret and sincere sorrow that we recently learned of the death of young Mr. Lewis, son of C. M. Lewis, superintendent of the Philadelphia, Reading and Pottsville Telegraph Company. Mr. Lewis was about budding into manhood, and his death was a severe blow to his esteemed father, to whom we extend our sympathy in his irreparable loss.

Miss Maggie Penn, who was with us for about a year, resigning on account of ill health, died recently at her home in Chester, Pa.

Mr. P. A. Weadon has resigned to accept a position with The Associated Press.

Mr. B. M. Roscoe has also gone with The Associated Press, at Titusville, Pa.

Mr. C. W. Kaiser resigned to go with a broker.

Arrivals: Messrs. L. Smearer, D. C. McBride and R. P. Stoddard.

KANSAS CITY, MO., WESTERN UNION.

Our overland facilities having been increased to such an extent it was found necessary to install an additional chief to look after quads, loops and repeaters at night, Mr. A. R. Pippitt has been appointed to fill the position.

Mr. Clarence Higgins, son of our night way chief, M. S. Higgins, is suffering from a broken arm as a result of football playing.

Mr. C. J. Killick is now at the head of the check forces, vice John J. Shelley, who is still very weak from the effects of pneumonia, with which he was stricken some three months ago, and is only just beginning to venture out a little.

Mr. B. O. Biddle reports the birth of a daughter on March 12; likewise Mr. W. M. Hannon, a daughter, March 15.

Messrs. J. H. Giles, J. T. Heydon, L. M. Dunlap, H. L. Bleakney, Miss Jessie Noyes and Mrs. Watson are all at work again after a siege of sickness.

With the return of spring and increasing business, new faces are appearing among us, the latest arrivals being: Messrs. U. S. Alvord, E. E. Payton, J. R. Levy, C. J. Fallon, S. E. Sheets, T. C. Carter, C. C. Meigs, F. R. McNames, W. W. Gwin and N. P. Jamison. We miss those of Messrs. J. L. Fitzgerald, I. L. Printz, Archie Rainey and L. M. Slater, they having departed for new fields of labor.

CINCINNATI, O., POSTAL.

Spring seems to have made its appearance at last, and every one is happy. The boys have brought out their linen dusters, and the girls will soon be wearing their white aprons.

Mr. O. F. Klinke is off on a three weeks' vacation at Frankfort, Ind.

Mr. John Garner, who has been ill since December 6, returned to work last week.

Mr. J. E. Neville takes the position of night chief April 1, vice C. F. Printz, who will be traffic chief, days.

Mr. J. Carroll has gone to New York.

Mr. E. J. Nally, general superintendent of the Western Division, Chicago, Ill., was a recent visitor.

BOSTON, MASS., WESTERN UNION.

Business, which has been rather dull for the past three months, is now gradually increasing.

The prospects are that the summer season will be one of the busiest for some years in this district. With yacht races, trotting matches, bicycle and motor races, besides dual baseball outfits in the National and American Leagues playing in this city, there seems to be no good reason why business should not correspondingly boom.

Mr. H. J. Waters has been detailed to Middlebury, Vt., where the services of an extra operator are called for owing to the great quantity of press matter.

Arrivals, City Line Department—Miss Hennessey, formerly manager at Pawtucket, R. I.

WASHINGTON, D. C., WESTERN UNION.

Business continues good since the inauguration, all extra men are making good time.

The many friends of Night Manager W. H. Young, sympathize with him over the death of his wife, which occurred recently.

Mrs. R. W. Bender has been quite sick, but is, we are glad to note, recovering rapidly.

Mr. W. W. Beattie, one of the oldest men in this office, went to lunch about a month ago, and so far has not returned. His whereabouts is a mystery.

Messrs. James Hope and Frank Saffell have returned to Washington after having been in Richmond, Va., helping out for about eight months.

Mr. Charles Sargent, one of Richmond's finest operators, recently paid us a visit.

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CHICAGO, ILL., WESTERN UNION.

Leroy W. Dunning, aged 18, only son of George E. Dunning, assistant chief operator, died March 15 of appendicitis. The funeral was held on Sunday, the 17th, and was largely attended. A quartette of singers from this office, consisting of Mrs. Hammond, the Misses Minor and Mr. Harry O. Leaville, rendered some fine music. Mr. and Mrs. Dunning have the heartfelt sympathy of all.

David M. Hickey died at his home in Dubuque, Iowa, January 13. Mr. Hickey was well known in the East and South, and will be mourned by his many friends. He was last employed by the Postal Telegraph-Cable Company at New York.

Mr. Barney White, we are glad to learn, is steadily improving, and a speedy recovery from his illness is now expected.

Col. Soule, who has been on sick leave, is again at his post.

Mr. Ged Seward is on the sick list.

Judge Cullis has been serving on the grand jury for the past two weeks. Mr. Cullis' knowledge as a lawyer, and his conscientious mind, should make him an excellent juror.

Mr. G. R. Benjamin, the Buckingham system expert, has been transferred to New York, and Arthur Trunkel fills the vacancy, while Mr. Spickler takes Mr. Trunkel's place.

The storm of March 9 was the most disastrous in years, especially north of this point. Many of the railroads lost several miles of telegraph poles. With the stupendous efforts of those concerned, things are assuming the normal shape.

Miss Mamie Dickinson returned from the Long Distance Telephone Co. recently, and was welcomed by her many friends.

Mr. T. C. Brandon returned recently from Mexico, where he has been recuperating for some months. Mr. Brandon has taken on considerable flesh and is much improved in health.

Mr. L. M. Malcher has returned from Mexico, where he has been working with his brother in the coffee business.

Mr. A. J. Paine, manager at Goshen, Ind., was a recent visitor here.

Messrs. E. F. Lavery, R. C. Elder, P. J. Cummings, C. E. McCauley, J. P. Milott, F. H. Culver and J. T. Hickey were detailed to Milwaukee to assist during the recent wire prostrations, due to the storm. All of these gentlemen are first-class operators.

James C. DeLong, of the Western Union Tribune force, is absent on account of illness.

ST. LOUIS, MO., WESTERN UNION.

Miss Mamie McLaughlin left for Hot Springs, Ark., March 11, where she seeks relief from rheumatism.

Mr. Thomas Phelan has the profound sympathy of his many friends, as was evidenced by a very handsome tribute, in the death of his brother James, who died March 9, of a complication of diseases.

Mr. Raymond Alger returned from Springfield, Mo., March 13, after an absence of two weeks.

Mr. Charles Cummings, Jr., of the Commercial News Department, was compelled to leave for the Southwest for his health. He was accompanied by his mother. They will very likely make Phœnix, Ariz., their stopping place.

Mr. Percy Wark, one of our bright young branch office operators, has been transferred to the main office waiting list.

Mr. Claire Hull, who was very sick with pneumonia, is somewhat better, but will in all probability spend a few weeks more in bed.

A very enjoyable event was the masked ball March 15, given in honor of Duncy Bagot. Col. Frank Gorosky made an excellent Chinaman—a "boxer"—and carried off all honors. Mr. Bagot, who has an excellent voice, favored the assemblage with several of the latest songs. Among those present were: The Misses Rubey, E. Osterman, Mamie Lacher, Belle Sinclair, Ida Ernesthauser, Viola Hart and Mattie Score; also the Messrs. Duncy Bagot, M. W. Van Dam, H. V. Crain, M. D. Crain, Jr., H. Gosting, F. G. Gorosky, Joseph Gruenfelder, J. B. Holle, J. Schmitt, R. W. Shore, W. F. Irvine, W. K. Kairn, J. Strong, Joseph Barry, J. J. McCruden, P. J. Hogan, M. F. Conerty, T. Grady, T. Mullally and W. Score.

PHILADELPHIA, PA., POSTAL.

Chief Operator Mr. C. A. Stimpson, accompanied by Mr. Joseph Eder, is in Baltimore attending to the work of removing the main office. The task is a great one, but these gentlemen are equal to it and expect to have everything in readiness before April 1. Quad Chief Mr. Charles Dreher was also sent for, and furnished several days' valuable service.

The telegraph department of The North American, in their new 22-story building (the highest in the city), is in full keeping with the progressive spirit of this paper. Four quartette tables, two furnished by each telegraph company, have been fitted up, giving a seating capacity for sixteen men.

Mr. Samuel Lewallen, one of our promising young operators, has been working at The Ledger office to help out on the overflow.

Resignations: William Madden and Robert Stoddard.

How's This?

We offer One Hundred Dollars Reward for any case of Catarrh that cannot be cured by Hall's Catarrh Cure.

F. J. CHENEY & CO., Props., Toledo, O.

We, the undersigned, have known F. J. Cheney for the last 15 years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by his firm.

WEST & TRUAX, Wholesale Druggists, Toledo, O.
WALDING, KINNAN & MARVIN, Wholesale Druggists, Toledo, O.

Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price 75c. per bottle. Sold by all Druggists. Testimonials free.

Hall's Family Pills are the best.

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New arrivals: H. P. Ruffee, from Boston, and Mr. Firman, returned.

Mr. William Wisegarver has been transferred to the night force.

Owing to serious trouble with his eyes, Mr. Thomas Poppert has been compelled to remain at his home for treatment.

We are pleased to note the return of Miss M. V. Hagan.

Miss Emma Closson has resigned her place at the Ninth street and Girard avenue branch office to accept a more desirable position with a broker.

Mr. Christian Troeller, from the Harrisson Building office, takes up a position for the season in Atlantic City, N. J.

Mr. Les. Damuth, formerly connected with the night force, has his cards out announcing his location, expecting to build up a good practice in dentistry.

Mr. Edward Brylawski, well known in this office, has charge of a broker's branch house at Atlantic City, N. J.

A merited promotion was given to Mr. M. Auerbach, who served his "apprenticeship" with Frank Scott at the North Front street office. Mr. Auerbach was installed as an operator at the branch office, corner of Third and Walnut streets, under Mr. Taylor.

Outside of the Old Timers' meetings, scarcely anything is ever heard from old "Jack" Wintrup. He is still very much in evidence and always has a cheery greeting for all callers. His office—the telegraph department of the International Navigation Company—is a busy spot, keeping several operators on the move. Commercial pursuits still hold many attractions for Mr. Wintrup.

NEW YORK, POSTAL.

For several months the service department has been making corrections direct with the city branches by means of a "short" wire running from that department to the city switch, which was connected with any branch wire the service operator asked for. The old way of sending service messages to various branch tables occasioned serious delay. The new system was found to work so well in the quick servicing of messages that a hundred-wire switch has been placed in the service department, connecting with most all of the city branches, and enabling the service operator to cut in on any wire necessary, thus still further cutting down the delay. Corrections can now be made in less than two minutes' time.

Manager James P. McBurney, of the branch office at 853 Broadway, has returned from Mechanicsville, N. Y., where he went to bury his mother.

Mr. A. G. Sullivan chief operator of the 853 Broadway office, is back again after a vacation of two months.

Mr. Thos. J. Donovan, manager of the Washington Market district, was presented March 5 with a daughter.

Mr. E. W. Clowes, of the night force, has resigned to accept a position with a broker in Chicago.

Mr. W. C. Wooten, of the Philadelphia night bonus wire, has left to engage in business in Denver, Col.

Mr. Frank Murray has accepted a position with Counselman & Day as broker operator at their Waldorf-Astoria branch.

Mr. Glen Newman, quad chief on South and West, and Miss Minnie Baxter, formerly of the city department, but more recently with a broker, were married March 14 in Brooklyn.

Mr. G. W. Ribble, manager of the Washington, D. C., office, paid this office a visit lately, spending several hours inspecting its equipment.

Mrs. Dollie Neill Murray, wife of E. F. Murray, of this office, for a number of years statement clerk at the 112 Front street branch, and for eight years chief clerk of the bookkeeping department at 253 Broadway, died at her home in Brooklyn, March 14. Death was the result of an accident sustained on the Brooklyn Bridge several years ago, from which she never recovered, and which caused cancer. About a year ago, an operation was performed, and the cancer removed, but the poison had permeated her system, and after suffering a year the end came very peacefully.

NEW YORK, WESTERN UNION.

The sympathy of the force is extended to Mr. James C. Robinson, our night manager, who recently buried his mother; also to Mr. William Shone, who was called to Philadelphia to attend the funeral of his mother.

Mr. Wm. Wall's youngest son died March 17.

Mr. Thomas J. McCann, formerly of this office, died March 14, at Pueblo, Col.

Maritime Exchange Branch: This office is one of the oldest branch offices downtown, Manager Holland having been in charge for upwards of thirty years. The business, which is principally maritime, is quite heavy, but is very ably handled by Mr. Holland and his efficient corps. The roster is as follows: H. Holland, manager; H. Reissman, the former night manager, Manhattan Hotel, and Thomas F. Kennedy, who has just recovered from a five months' illness, operators; F. J. Harden, clerk.

New York Cotton Exchange Branch: Business continues very good, notwithstanding the fact that the cotton season is virtually over. Mr. Edward Fraser is back again, having been absent for nine weeks on account of a broken leg.

Departures: Mr. Geo. H. Mooney, of the extra list, to go with a brokerage firm at Lakewood, N. J.; Mr. A. Lang has been transferred from extra to the regular list.

Any fifty-cent piece of music mailed eighteen cents. Rusticana, Anchored, Calvary, Palms, Flower Song, ten cents each. Anything at less than half publisher's price. I will sell you a good piano for one dollar per week, from $35 up. B. L. Brannan, 195 Broadway, New York. (Adv.)

Don't give to an agent; send for us. Repairs on typewriters expressed or sent in to shop at reduction, to operators. Second-hand machines low price. Supplies, word-counters, etc., cheap. Parts and attachments made. Wall & Butler, Typewriter Repairs, 57 Dey Street, New York. (Adv.)

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Miscellaneous Items.

Mr. E. O. Warren, manager of the Western Union Telegraph office at Parkersburg, W. Va., has resigned to go to California.

Mr. John B. Biggins, of the Postal Telegraph-Cable Co., Chicago, Ill., has returned from his wedding trip to New Orleans and other southern cities.

The Western Union Telegraph Company will in the near future install dynamometer plants in its offices at Duluth, Minn.; San Francisco, Cal.; Detroit, Mich.; Houston, Tex., and Cleveland, O.

The general offices of the Knickerbocker Telephone and Telegraph Company, of which William Stanley Eckert is the general manager, have been removed from 416-422 Broome street to 100 Broadway, New York.

Mr. Grant M. Peoples, of Memphis, Tenn., in renewing his subscription lately, writes: "I find TELEGRAPH AGE very interesting, and it enables me to keep track of a great many of my old friends whom I have lost sight of since being out of the profession."

Mr. A. L. Suesman, the former western general manager at Chicago, Ill., of the old United Press, has formed a business connection with Sam. W. Hoke, the well-known long-distance bill poster, of 255 Fifth avenue, New York. The term "long-distance" derives its name from the fact that it bears the same relation to bill poster advertising as newspaper advertising agents do to newspapers, and he posts his matter all over the United States.

Canadian Telegraphs.

The beginning of the Canadian telegraph system was made 54 years ago, when a line was established between Quebec and Toronto. The mileage of Canadian telegraphs to-day is something over 35,057 miles, 18,286 miles of this being controlled by the Great Northwestern Telegraph Company, 8,886 by the Canadian Pacific Railway Company, 4,973 by the Dominion Government, and 2,912 by the Western Union Telegraph Company. It is calculated that this represents some 86,000 miles of wire and more than 2,700 offices. With the exception of the Yukon telegraphs and the extension on the north shore of the St. Lawrence, toward Belle Isle, the lines included in the Canadian Government telegraph service were almost all established and equipped between the year 1880 and 1882. Three years ago contracts were given for the supply of poles and for construction of the land line to connect with the proposed cable to Belle Isle, off the Labrador coast. But for the loss of the Government cable steamer, last fall, this cable would have been laid. When completed, it will practically reduce navigation between Canada and Europe to three days, the oceanic distance being reckoned from land to land where passengers can be placed in communication with the world. This will be effected when steamships can receive and send telegraphic messages at Belle Isle.

The New York Telegraphers' Aid Society.

The annual meeting of the New York Telegraphers' Aid Society was held March 27, at 195 Broadway. Amendments to the constitution and to the by-laws were adopted. The financial report for the year ending March 6, shows receipts of $7,615.59 and disbursements of $6,398.83, leaving a balance of $1,216.76, which, together with that on hand last year, shows a total cash balance of $13,470.03. The report of the Relief Fund for the year, as above, shows receipts of $682.35, against disbursements of $338, a net gain of $344.35, which, added to the cash on hand a year ago, leaves a balance in the treasury of $4,641.47.

At the election of officers the following were chosen: H. W. Saur, president; E. E. Brannin, vice-president; William J. Quinn, secretary; Thomas M. Brennan, treasurer; John H. Driscoll, H. C. Fardon, John Brant, auditing committee; and an executive committee of eleven, made up as follows: Misses S. Dougherty, M. E. Jermain, M. T. Kennedy, and Messrs. A. J. Gillman, J. McParlan, E. T. Dempsey, R. C. McDonald, J. Gschwind, George Leveene, W. W. Price and M. F. Gaffney.

Answers to Correspondents.

Editor TELEGRAPH AGE:

Will some one please explain why a carbon-zinc and a zinc-copper battery cannot be connected in circuit together. H.

Rich Valley, Minn., March 18, 1901.

[We see no reason why a series combination battery composed of zinc-copper and zinc-carbon, respectively, will not work OK on any circuit suitable for a zinc-carbon battery—in other words, for "open circuit" work. But where constant currents must be drawn from the battery—that is to say, on "closed circuits," the combination is not satisfactory for the reason that carbon-zinc batteries polarize quickly and become almost useless after a few minutes steady operation. The counter E. M. F. developed within the carbon cell acts against that in the zinc-copper cell, and thereby weakens the full battery to the extent of the counter force developed in each carbon-zinc jar in the row.—EDITOR.]

In Dire Peril in Alaska.

The first details of the hardship and suffering endured by two corps of soldiers and engineers who attempted to construct the telegraph line, as already mentioned in these columns, between Dawson City and St. Michael have been received. A miscalculation was made, and the two corps, working from opposite ends of the line, missed each other by seventy miles. It appears that it was necessary to send a relay expedition drawn by reindeer to rescue the constructing party from death.

Mr. Tesla's agent has left London for Lisbon to establish a receiving station on the Portuguese coast at the fortieth parallel of latitude, which will be in communication with a Tesla transmitter located on the New Jersey coast.

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The Gridiron Club, of Washington, D. C., is one of the most popular clubs of the Capital City, and embraces in its membership a large number who are prominent in public and civil life. Mr. P. V. De Graw, now of Philadelphia, Pa., a well-known former telegrapher, and for many years general southern manager of The United Press at Washington, was one of the founders of this famous organization, and it was on the offering of his motion that the club was formed. This was in 1885. For eight years, from 1890 to 1898, Mr. De Graw served as its secretary, and on his retirement was presented with a handsome silver loving cup.

A NEW SOUTH AMERICAN CABLE ROUTE.—Adverting again to South American cable connections, a subject touched upon in the March 16 issue, it is well to note that the Commercial Cable Company has also established a new route to Brazil and to all points on the Atlantic coast of South America. This is maintained over its new cable to the Azores, thence to Lisbon, Portugal, to Madeira and to Pernambuco.

THE ENGLISH PACIFIC CABLE.—The Canadian House of Commons has passed a bill providing for Canada's share of the cost of the new Pacific cable. Canada will pay 5-18 of the total cost, which will be £2,000,000.

The New York State Senate has reported favorably on a bill to prevent employees in telegraph and telephone companies from aiding criminals in violating the law regarding the delivery and transmission of messages.

Business Notice.

The Smith Premier Typewriter Co., of Syracuse, N. Y., is sending out a large half-tone, a reproduction from the official photograph of the National Commercial Teachers' Federation at the Detroit meeting, showing an extensive group of over two hundred well-known educators. The faces and figures are remarkably distinct, and the picture is an excellent example of present day possibilities in engraving and printing.

Telegraph Odds and Ends.

The following office message was received: "Yours date Smith sined Smith is 370 & out of town." The relay office insisted it was "copy" and would not change it.

A customer recently informed a manager that the messenger who responded to his district messenger call was a very warm messenger and must have been raised on a hot wire.

Two telegraph operators will accompany the President on his private train during his coming transcontinental trip.

Amos L. Bougher, of Philadelphia, has secured the agency for the celebrated "Alexander" word counter for Philadelphia and vicinity; price, $3. It needs no recommendation. You simply press the button and it counts. Address orders to him, care Western Union Main Office, Philadelphia, Pa. —(Adv.)

Readers of the TELEGRAPH AGE are referred to the advertisement of the Montauk Cable Company on page two of the front cover.—(Adv.)



Taltavall's Telegraphers of To-day. Descriptive, historical and biographical. 355 pages and 700 engravings of the prominent telegraph people. Price, $5.00, expressage prepaid. Address J. B. Taltavall, 253 Broadway, New York.

The Modern Service of Commercial and Railway Telegraphy (8th Edition, revised and enlarged), by J. P. Abernethy. The theory and practice, including railway station and express service. Arranged in questions and answers. 425 pages, 40 illustrations. Price $2.00, expressage prepaid. Address John B. Taltavall, The Telegraph Age, 253 Broadway New York.

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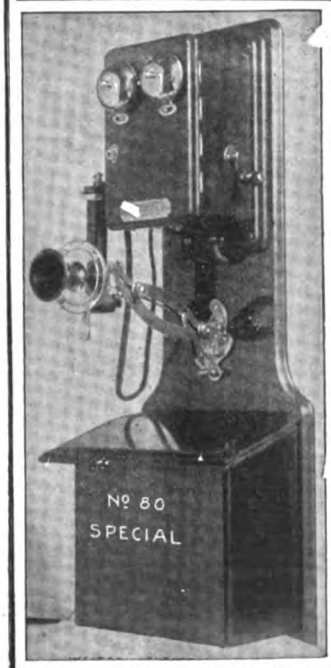
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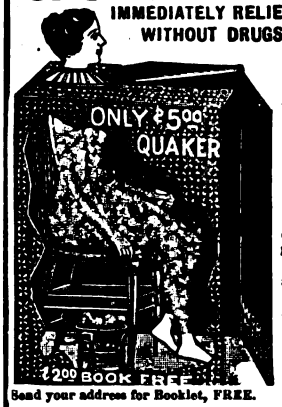
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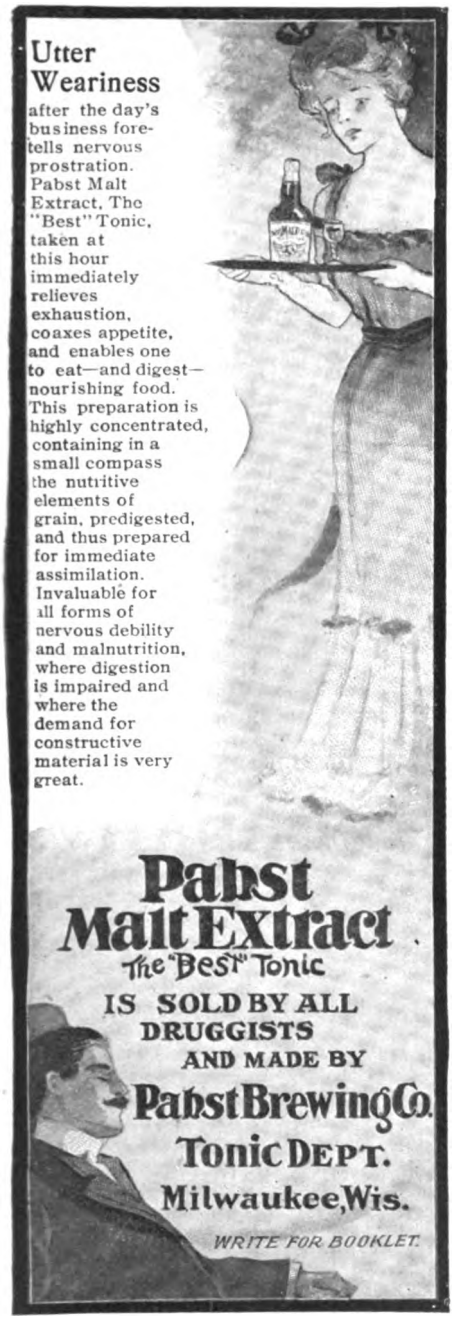
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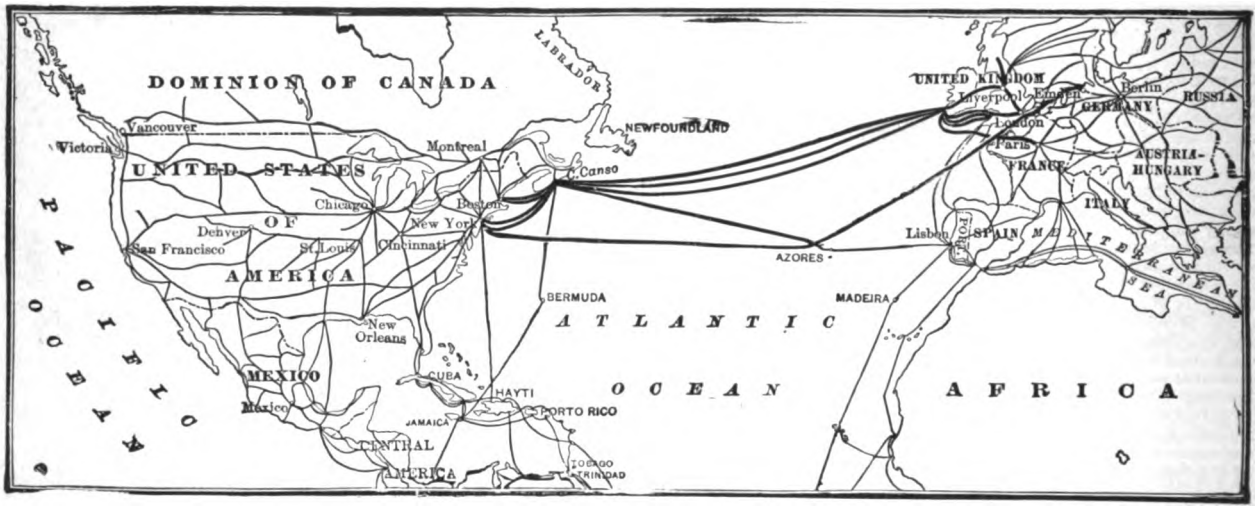
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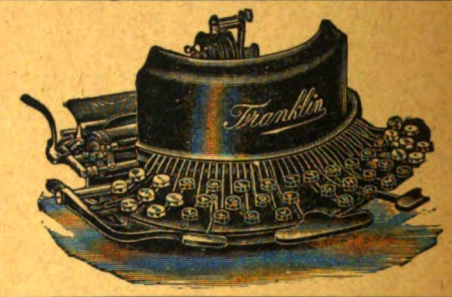
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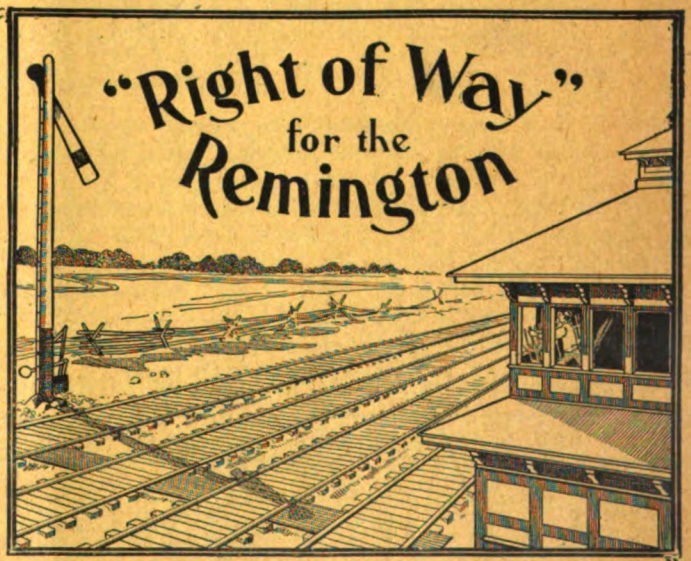
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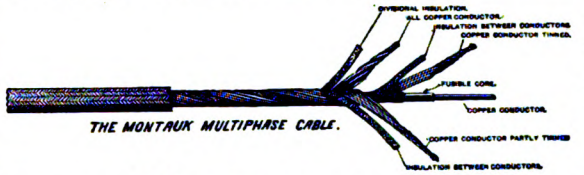
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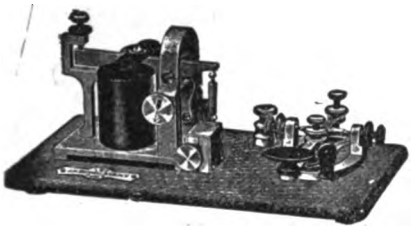
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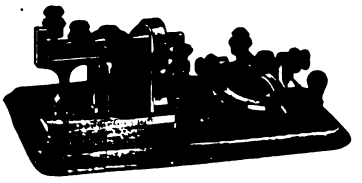
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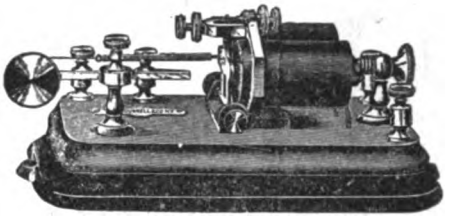
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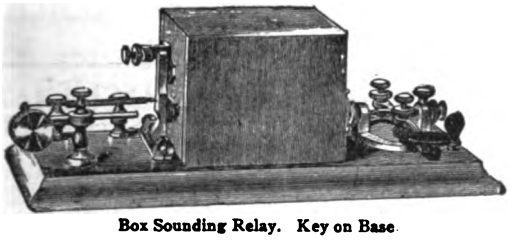
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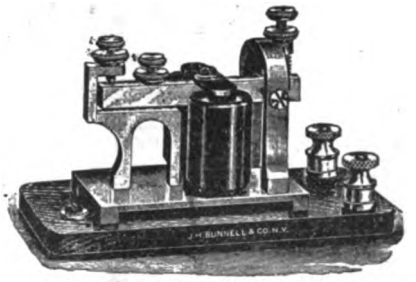
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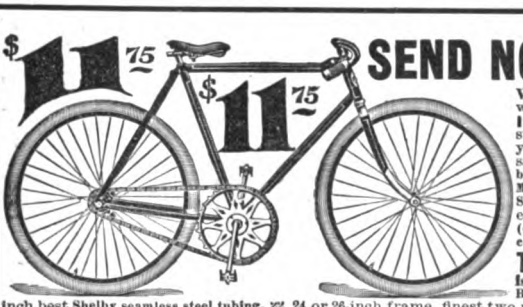


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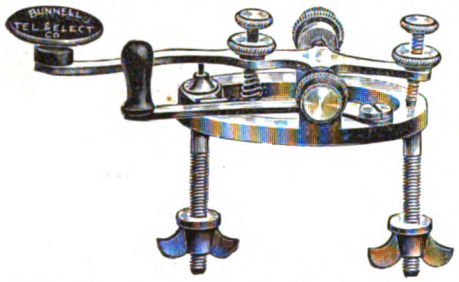
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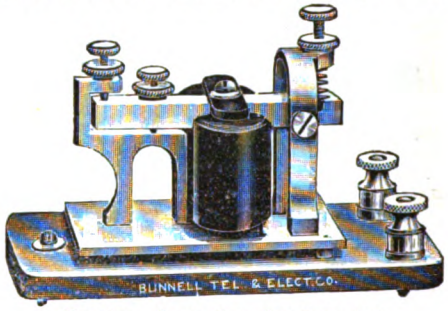
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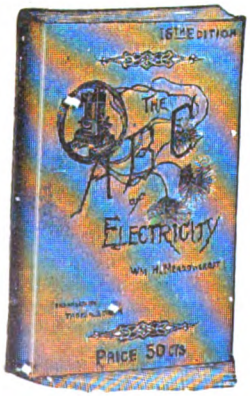


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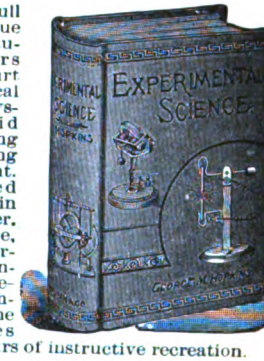
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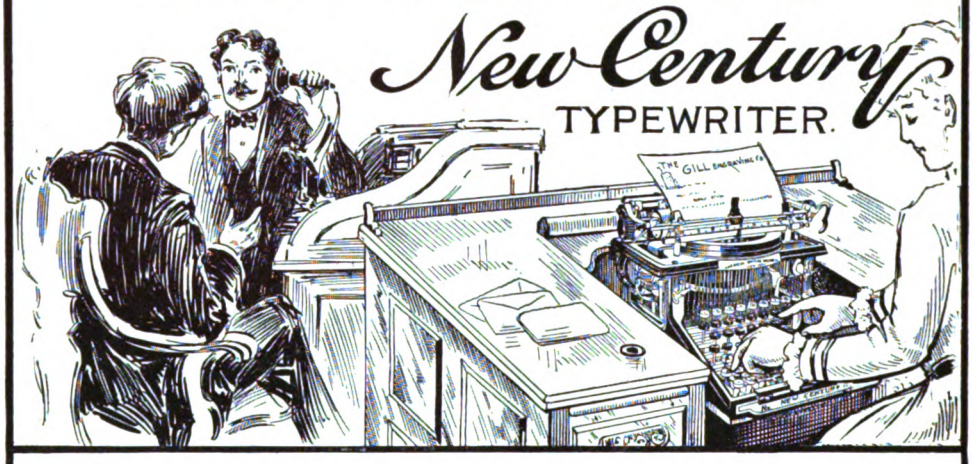
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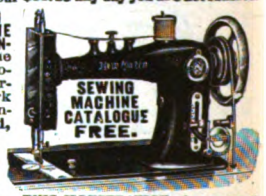
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No. 8. NEW YORK, APRIL 16, 1901. VOL. XXIV.

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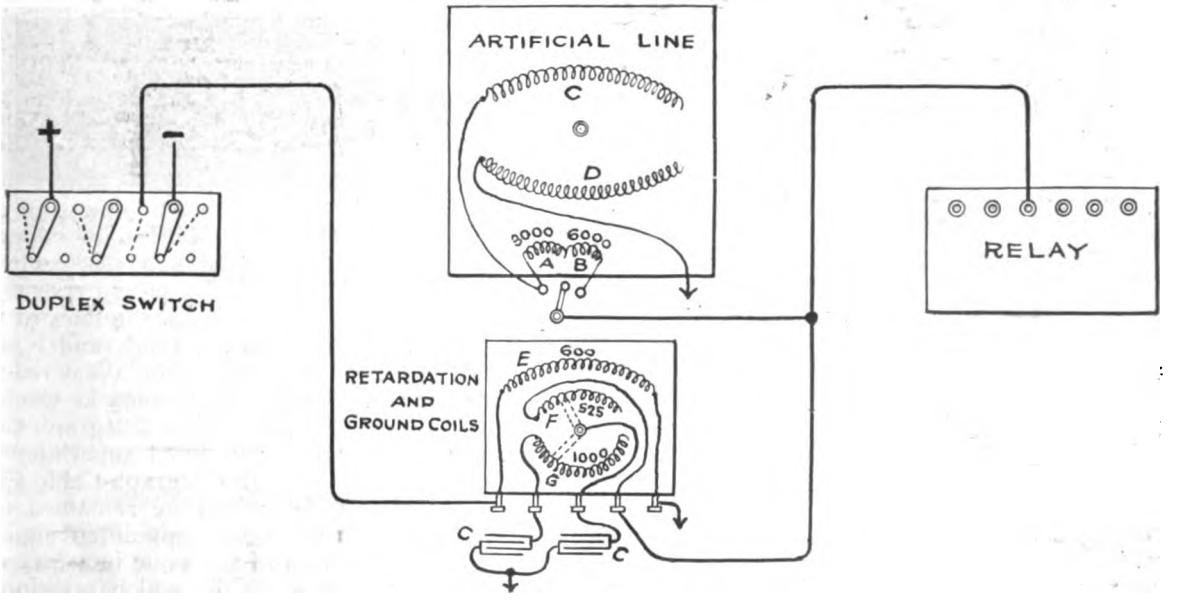
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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

During the past few months, several requests having been received for a diagram showing the resistance coils and wire connections of the radial pattern of rheostat, we herewith illustrate the device as usually arranged for quadruplex apparatus.

Coils *A*, *B*, *C* and *D*, in the larger box, are different portions of the artificial line, while coils *F* and *G* are the retardation resistances, one coil for each condenser. *E* is a separate coil of 600 ohms resistance and is called the compensating ground coil. By turning one or both of the dials in the large box to the right or to the left, a greater or a lesser amount of the total resistance in the artificial line may be obtained and a "balance" thus taken. Coils *A* and *B* are additional resistances, to be used when the main line wire contains a greater amount of resistance than that of the coils *C* and *D* combined.



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tions by Ohms law, using the value of the current, or that of the voltmeter, as indicated by the needle, as one of the known factors, the result is not always so reliable, because in practical work one may be mistaken as to the true value of his second factor.

For example: Suppose that a wire chief desired to ascertain the resistance of a wire by means of an ammeter and his knowledge of the electromotive force in his switchboard. He would insert his ammeter in the circuit and note the value of the current when the wire was grounded at the distant end. Assuming that the needle indicated 50 milliamperes of current, .050 then becomes one of the known factors. If he used the first potential in his board, say 75 volts, 75 must necessarily be the second factor. Now, according to ohms law, $\frac{75E}{.050C} = 1{,}500$ ohms, the resistance of the circuit. To find the resistance of the wire itself, we must deduct the lamp resistance inserted between the dynamo and the switchboard, which is placed there for the former's protection. This amounts to approximately two ohms per volt of potential, but as a few ohms either way makes no practical difference at that point, there has never been any effort made to give these lamps a strictly uniform value; and, furthermore, as the resistance of the carbon filament itself varies with its temperature, the same lamp does not at all times contain the same amount of resistance.

This drawback to the meter method acts detrimentally in two ways: It renders the value of the "deducted" resistance an unknown quantity, and drops the initial value of the electromotive force in a variable manner, thus making the value of the two "known" factors unreliable. By the galvanometer method the value of the electromotive force and the strength of the current is immaterial. When the needle ceases to be deflected by the current flowing through the two circuits, the rheostat indicates the actual value of the external wire in ohms. This statement amounts to saying that results obtained by means of volt and ammeter calculations are approximately identical with those obtained with a galvanometer, provided you are absolutely sure of the value of your factors.

(*To be continued.*)

Odd and Ends.

[Short, pithy items bearing on the telegraph are solicited for this column.—Editor.]

In Germany, when one newspaper cribs telegraphic items from another paper and prints them as original matter, the act is called "grapevine" telegraphing.

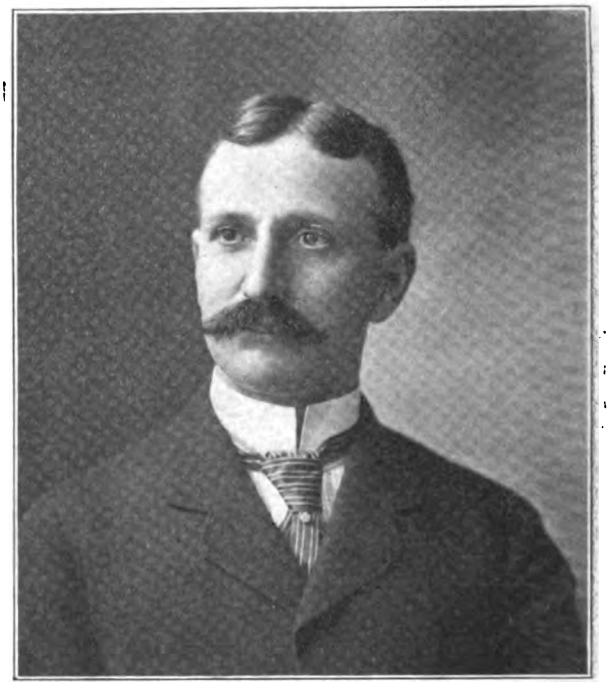
YOUTHFUL PRODIGY: "Pop, what does 'dynasty' mean?"

PATERNAL PROGENITOR: "A 'die-nasty,' my son, is what happens to a man who sends fifty-seven long, red, messages to the man he hates at 3 o'clock in the morning, and then discovers that the man didn't get any of them. Its most horrible feature is that complete mortification ensues before death occurs."

Appointed Assistant General Superintendent.

Mr. Charles M. Baker, for many years general superintendent of construction of the Postal Telegraph-Cable Company, Chicago, Ill., has been promoted to be the assistant general superintendent of telegraph, vice Mr. E. J. Nally, who was appointed general superintendent of the same interests on January 1, last.

Mr. Baker was born at Alexandria, Pa., April 13, 1854. He entered the telegraph service at Dwight, Ill., in 1870, as manager and lineman for the Great Western Telegraph Company, a position he held until 1873, when he was appointed to a similar position with the American Union Telegraph Company, also at Dwight. After the consolidation of the latter with the Western Union Telegraph Company he was appointed superintendent of construction of the Mutual Union Telegraph Company, and



MR. CHARLES M. BAKER,
Assistant General Superintendent Postal Telegraph-Cable Co., Chicago, Ill.

superintended the construction of the lines of that company from Chicago to St. Louis and Kansas City, and to all other points in the West reached by that company. From 1881 to 1883 he was special agent for the Western Union Telegraph Company. In 1883 he was appointed superintendent and manager of the Postal Telegraph-Cable Company at Cleveland, O., where he remained until January, 1884, when he was appointed superintendent of construction of the same interests with headquarters at Chicago, Ill., which position he held until 1898, when he was promoted to be general superintendent of construction, an office he held until his present appointment.

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From Manager to Superintendent.

Mr. Edgar W. Collins, who for the past two years has been manager of the Postal Telegraph-Cable Company at Cleveland, Ohio, has been promoted to be district superintendent of the same interests, with headquarters at Cincinnati.

Mr. Collins was born near Ottawa, Ontario, December 25, 1852, a Christmas gift, as he himself terms it, to his parents. His childhood was one of vicissitude, and early in life he came to this country. He learned telegraphy, and in 1869 found the first position in his chosen field of work. After varied experiences, covering the period up to 1875, he entered the Western Union service at Cleveland, and there remained as an operator until July, 1883. In this year he became the chief operator of the American Rapid Telegraph Company, which afterwards was merged into the Bankers and Merchants. From



MR. EDGAR W. COLLINS,
Superintendent Postal Telegraph-Cable Co., Cincinnati, Ohio.

the latter it was a natural transition to the employ of the Postal Telegraph-Cable Company at Cleveland, with which he has ever since been identified, promotion in its service coming with pronounced regularity. He was married in 1886 to Miss Anna G. Conway, of the New York Postal force. They have two daughters.

Mr. Collins has been in the past an occasional contributor to the columns of TELEGRAPH AGE, and his clever character sketches which have appeared therein have been widely read. As a song writer he has also won favor.

Resignations and Appointments.

Mr. H. A. Tingley, manager of the Western Union office at Bath, N. Y., has been transferred to the Newburgh, N. Y., office, as manager, while his former assistant, Mr. Bernard C. Ford, has been promoted to the head of the Bath office.

Mr. George R. Rigdon, formerly manager of the Postal Telegraph-Cable Company at Scranton, Pa., has returned from Missouri, to resume his old position.

Mr. Charles H. Warth has been appointed chief operator of the Western Union office, Milwaukee, Wis., filling the position left vacant by the death of E. M. Shape.

Mr. H. J. Lockrow, manager of the Postal Telegraph-Cable office at Newport, R. I., has resigned to enter other business. The position has been filled by the appointment of Mr. G. M. Foote.

Mr. H. M. Bennett, the former manager of the Postal at Binghamton, N. Y., who left that place to enter the Western Union service as manager of the Newburgh, N. Y., office, has returned to his former position.

Mr. W. I. Capen, for the past two years superintendent of the Postal Telegraph-Cable Company, Chicago, Ill., has been appointed superintendent of construction of the same interests, with headquarters at Chicago.

Mr. Frederick W. Conger, for the past two years superintendent of the Postal Telegraph-Cable Company, at Cincinnati, Ohio, has been transferred to Chicago, Ill., to fill the office of superintendent, vacated by Mr. Capen.

Mr. B. J. Ross has been appointed manager of the Postal Telegraph-Cable Company, Cleveland, Ohio, vice E. W. Collins, promoted to be superintendent. Mr. Ross has acted as chief clerk of the office for several years, and is well qualified to fill the managership.

Obituary.

George Cowen, a telegraph operator of Fall River, Mass., died in that city on March 27.

P. F. Hurcur, of Hazleton, Pa., a telegraph operator, was instantly killed March 10 by being struck by an engine.

S. S. Hill, a broker operator at Kansas City, Mo., died March 12 from the effects of a fall down a flight of stairs.

Walter M. Siegler, of Lancaster, Pa., a telegraph operator, twenty-three years of age, was fatally injured, March 10, by falling under a train of the Pennsylvania Railroad.

W. Harry Clarke, who was formerly manager of the Baltimore and Ohio Telegraph Company at Washington, D. C., died in that city of pneumonia on April 1. He was also connected with The United Press at one time, and had worked for various telegraph companies. For some years past Mr. Clarke has been in the Government employ in the Treasury Department.

Miscellaneous Items.

Steps have been taken for a railway brotherhood building, to be erected in St. Louis, Mo. L. W. Quick, of the Order of Railway Telegraphers, was made secretary of a committee to promote the matter. The proposed building will contain offices and lodge rooms, and probably hotel accommodations for the visiting members of the different railroad organizations.

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Personal Mention.

Mr. Alexander Cochrane has been elected president of the American Telegraph and Telephone Company, vice J. E. Hudson, deceased.

Mr. C. C. Adams, superintendent of the Postal Telegraph-Cable Company, Philadelphia, Pa., has returned from Jamaica, West Indies, where he has lately spent a few weeks. He was accompanied by his wife.

Mr. William H. Baker, the vice-president and general manager of the Postal Telegraph-Cable Company, passed the forty-sixth anniversary of his birth on April 13. A few of his friends took advantage of the occasion to tender him a complimentary dinner.

Mr. L. B. McFarlane, superintendent of the Bell Telephone Company, Montreal, Quebec, and the president of the Old Time Telegraphers' Association, accompanied by his wife, recently passed a few days in New York. Piloted by Mr. John Brant, the secretary of the Association, Mr. McFarlane called upon a number of New York friends.

We learn, on going to press with this issue, through Mr. F. W. Jones, who is a next door neighbor and old friend of Mr. James D. Reid in New York city, that Mr. Reid lies at his home in a very weak condition, with chances of recovery against him. His good constitution, which has been so greatly conserved by his abstemious and correct habits, is serving him well in this hour of strain and struggle against the inroads made by the abscesses with which he has been afflicted. He has the prayers and good wishes of a host of friends. He has a devoted wife and brother who are in constant attendance upon him, and an anxious daughter, residing in Edinburgh, Scotland, is kept advised by cablegrams.

New York Visitors.

Mr. H. A. Tuttle, general manager of the North American Telegraph Company, Minneapolis, Minn., accompanied by his wife.

Mr. J. R. T. Auston, of St. Louis, Mo., the vice-president of the Brotherhood of Commercial Telegraphers.

The Omnigraph.

The Omnigraph Manufacturing Company, of 39-41 Cortlandt street, New York, have recently placed on the market a telegraphic instrument known as the Omnigraph. It consists of a baseboard on which are secured an ordinary key and sounder, between which a disk is mounted, formed on its periphery with teeth. A spring contact adjacent to the wheel engages the peripheral teeth of the disk. Although irregular, the arrangement of the teeth is arbitrary. For if the disk be rotated by means of a small crank-shaft, geared with the disk-shaft, the spring contact is forced outwardly by the teeth, but drops back by its own elasticity, and thus makes and breaks the circuit, thus forming the Morse alphabet.

A close inspection of the disk would reveal that the teeth are so arranged as to spell the sentence, "John quickly extemporized five tow bags." If the disk be rotated forwardly, this sentence, thus oddly worded to include every letter in the alphabet, is spelled by the sounder; if rotated in the opposite direction, the sentence will be telegraphed backward.

The disk is completely under the control of the operator. It can be rotated as slowly as desired; or it can be so rapidly turned that its curious sentence will be received from the sounder with a speed that would open the eyes of a good operator. Moreover, the message on the disk is transmitted with a distinctness and faultlessness which the most perfect operator can never hope to attain. At first blush it might seem that the operator simply learns one sentence forward and backward, and that the instrument is a good teacher only within very narrow limits. But this disk can be partially rotated forward and backward any number of times, in any place, so that the letter to be transmitted cannot possibly be anticipated. Thus the operator learns how to receive a cipher message, the meaning of which he cannot know.

This device is no doubt an excellent one for operators who desire to use the typewriter in receiving from the instrument. It is only necessary to have a motor or some one turn the crank forward and backward at the speed desired, and the work will be found to be made comparatively easy.

The Railway Telegraph Superintendents.

As previously announced, the next annual meeting of the Association of Railway Telegraph Superintendents will be held at Statler's Pan-American Hotel, Buffalo, N. Y., on Wednesday, Thursday and Friday, June 19, 20 and 21. The indications now are that there will be an unusually large attendance, many superintendents already having signified their intention to be present, a number being accompanied by their wives and families. Undoubtedly the Pan-American Exposition, which opens on the first of May, is also proving to be an additional drawing card, and to this fact may be attributed in a measure the expected presence of so many ladies.

As some of the superintendents have expressed a desire to obtain additional information regarding the possibilities of simultaneous telegraphy and telephony, it is hoped that this interesting topic may be brought up in a paper treating on the subject. It is not out of place in this connection to note that Mr. L. B. Foley, superintendent of telegraph of the Delaware, Lackawanna and Western Railroad Company, New York, has lately made some interesting and successful experiments in this respect, which are referred to at length in an illustrated article elsewhere in this issue.

The very favorable auspices under which this convention will be held, make it a particularly desirable occasion for the display of exhibits. Ample space will be reserved for this purpose. Correspondence on this subject should be addressed to Mr. P. W. Drew, secretary and treasurer of the association, and superintendent of telegraph of the Wisconsin Central Railroad Co., Milwaukee, Wis.

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Simultaneous Telegraphy and Telephony.

Mr. L. B. Foley, superintendent of telegraph of the Delaware, Lackawanna and Western Railroad Company, New York, assisted by his chief operator, Fred G. Wyman, has been for some time past conducting telegraph experiments on a metallic telephone circuit from the general offices, 26 Exchange place, New York, to the Brooklyn terminal, a distance of about six miles, in order to ascertain if two telegraph circuits could not be maintained on the same wires without one system interfering with the other. Simultaneous telephony and telegraphy was successfully carried on between the two points mentioned, the results obtained for a period of over a month being very satisfactory, and continuing so until the telephone company changed its plan of operations to a common battery system, which introduced complications rendering one or the other system, and at times both systems, useless.

change in the railroad general office. While the operator at the private branch switchboard was able to ring the distant telephone on the working adjustment, trouble was experienced when the distant end tried to get the home office with his telephone ring, the generator not being strong enough to cause the drop on the switchboard to fall. To overcome this difficulty, when the Brooklyn terminal desired the telephone operator, the other Morse circuit was brought into play. Instead of a telegraph key, a small switch was placed in circuit by which the local arrangements of the relay were thus reversed, so that when the distant station wished the telephone operator he could throw the switch, thereby releasing the armature of the relay, closing a local circuit, which was connected with a buzzer in the telephone booth. The Brooklyn terminal was enabled to communicate over any of the various extensions which run into the private exchange in the general office,

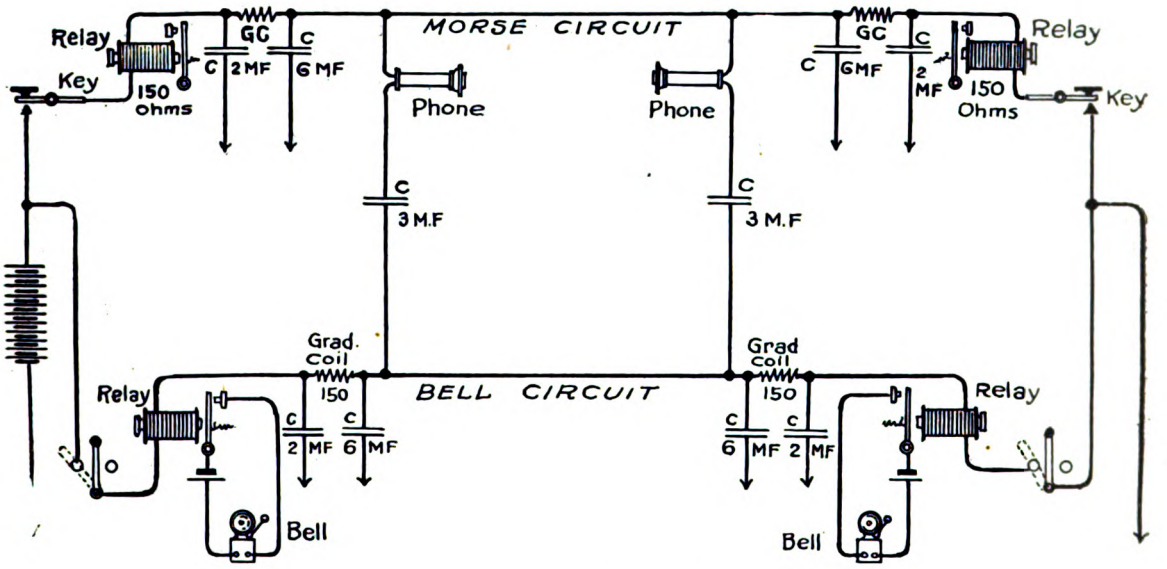


DIAGRAM SHOWING ARRANGEMENTS OF SIMULTANEOUS TELEGRAPHY AND TELEPHONY.

The diagram shows just how the system was arranged for the successful working which was obtained; it illustrates how two perfect Morse telegraph circuits were obtained from practically one metallic telephone circuit. The main telegraph battery of 45 volts was placed in the general office of the railroad company in New York. It will be observed that the arrangement of the condensers and graduating coils favor that of the Van Rysselberghe system very closely, excepting that instead of using four graduating coils, but two were used, and instead of two condensers four were employed. The line being so short and a very powerful battery not being required, it was found that the two graduating coils, with the additional condenser, were sufficient to overcome the effects of attraction and repulsion impulses of the Morse currents on the diaphragm of the telephone receiver. The telephone extension upon which this system was tried runs into a private branch exchange in the railroad general office. While the operator at the private branch switchboard was able to ring the distant telephone on the working adjustment, trouble was experienced when the distant end tried to get the home office with his telephone ring, the generator not being strong enough to cause the drop on the switchboard to fall. To overcome this difficulty, when the Brooklyn terminal desired the telephone operator, the other Morse circuit was brought into play. Instead of a telegraph key, a small switch was placed in circuit by which the local arrangements of the relay were thus reversed, so that when the distant station wished the telephone operator he could throw the switch, thereby releasing the armature of the relay, closing a local circuit, which was connected with a buzzer in the telephone booth. The Brooklyn terminal was enabled to communicate over any of the various extensions which run into the private exchange in the general office, while telegraphic signals were being transmitted without any material interference, and that little was so very slight that a person who did not know the existing conditions would never realize that a Morse circuit was being operated on the same wire.

THE STOCK QUOTATION TELEGRAPH CO.—The Stock Quotation Telegraph Company removed on April 6 from its old offices at 16 Broad street to its sumptuous new quarters at 54 Broad street, New York, the change being effected under the direction of Mr. John Burry, the electrician of the company, with his able assistants. The offices are conveniently arranged, and the private rooms occupied respectively by President William H. Hurst and the secretary and treasurer, John J. Walsh, are fine examples of modern business apartments. Notwithstanding the intricacies of this system, the removal was effected without the slightest hitch.

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THE APPLICATIONS AND REQUIREMENTS OF A PRINTING TELEGRAPH.

BY ROMYN HITCHCOCK.

Many efforts have been made by inventors to produce a practical printing telegraph which will supersede the Morse key in the telegraph business of the world, and many failures and disappointments have resulted. It is not an unusual experience that inventions of great ingenuity and apparent value have been perfected at large expenditure of time and money, only to discover that they are not wanted in the commercial world. We hear much of "the state of the art" whenever new devices are brought forward, but the state of the art, as shown in the records of the United States Patent Office, may be quite different from the conditions which prevail in practice. Inventors are by nature optimistic. They are not, however, usually able to accurately gage the conditions under which their inventions must compete with existing devices. Superiority in certain directions may be offset by conditions which are practically prohibitory of the application of improvements which effect minor economies, although in the aggregate the saving may be large.

The writer has followed the development of the printing telegraph for many years, and while recognizing the value of a thoroughly good, cheap and reliable device of this nature, for special applications, there are obvious and good reasons for believing that it can never be introduced for the general telegraphic work of the great companies. The most that can be said in favor of the general use of a printing telegraph is that it practically doubles the speed of transmission by the Morse key. The further claim is made that it will reduce the cost of operating by permitting the substitution of typewritists for expert telegraphers.

Regarding the increase in speed, the advantage is not sufficiently great to be attractive in itself, particularly when the considerable cost of the instruments and keeping them in order is taken into account. The direction of improvement in telegraphy is certainly above all in an increase of speed of transmission; but this increase must be very much greater than the printing telegraph, by reason of its mechanical and electrical limitations, can ever realize. Machine transmission, at a speed far beyond any system now in use, is destined to be the great universal system of the future.

Regarding the plausible argument of economy in operating, this is illusory because of the erroneous assumption that a general telegraph business can be successfully conducted by untrained operators. Granting that the parsimonious methods which characterize the present telegraph monopoly in the payment of faithful employees leads to a large average of inefficiency and loss of time, all important lines, on which service must be maintained under the most adverse conditions, are necessarily in charge of experienced men, and the introduction of printers on such lines would require equally good if not superior qualifications in the operators, who would have more than a simple key and relay to control. This is particularly true when the printers are duplexed, as they would necessarily be for this service. The balancing of the line for duplex working would require about the same skill as now is demanded of quadruplex operators. It is likewise doubtful if competent typewritists could be secured for the same low wages that the Western Union now pays for ordinary Morse operators.

For these and other reasons, which the practical telegrapher will immediately recognize, the printing telegraph operated from a keyboard can never compete with the Morse key for general telegraph service. In reply to this it may be said that the old Hughes printer is still used on several British lines, and the Baudot system is used in France. While these systems may be referred to as indicating the practicability of operating printing telegraphs over long lines, they do not meet the requirements for universal application. A close inquiry into the reason why the Baudot system is used in France will indicate that the intrinsic merits or advantages of the system are not the only considerations.

Nevertheless, a printing telegraph which fulfils certain specific requirements would doubtless find considerable use on particular lines operated by the telegraph companies, and especially on certain railroad lines. At stations where the operators are required to be frequently absent from their posts on other business, the printing telegraph can be so arranged that it will receive messages while no one is present; at least it will be unnecessary to have a regular telegraph operator at every insignificant station on the line, since any person can quickly learn to use the apparatus.

However, telegraphers need not have misgivings concerning the introduction of the printing telegraph. A few of them may be changed about; but the way is opening for a large expansion of the telegraph service, and experienced telegraphers will not only be more and more in demand, but their services will be more adequately recompensed than they are now.

A much larger field for the printer is in connection with the telephone, or in the line of special wire connections between offices, factories, warehouses and homes. This field is not yet occupied by any similar device. It is virgin ground, unexplored and undeveloped. But it has its possibilities. Some years past the writer was in London, and in conversation with a gentleman connected with the telautograph was much interested to learn of an important use which has been made of that ingenious invention. A certain piece of machinery was wanted immediately and the factory was located a long distance from the business office in the city. Ordinarily some hours would elapse before the order could be delivered at the factory, since it was necessary to submit a diagram. Having telautograph connection, the order was immediately written on the machine and the diagram drawn out and sent over the wire. The printing telegraph will not make the diagram, but otherwise it fulfils the purpose which the telautograph was intended to accomplish, and for which it was

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confidently believed that admirable invention would be largely used.

However perfectly the telautograph may operate, it is too slow for general commercial use. No person will write when a typewriter can be employed, and the relatively few cases in which *fac simile* signatures are necessary in wire communications scarcely warrant the hope of a very general use of the telautograph.

The introduction of the printing telegraph in connection with the telephone, however, is eminently practical, and offers an attractive field for enterprise. Verbal communications are not always satisfactory to either party. Frequently they are subject to confirmation by letter, and perhaps the letter never comes. While the line is in use for speaking one may say: "Please put that down in writing," and forthwith the telephone is switched off and the printing telegraph is switched on, and the writing is done. Moreover, if a man is absent from his office, a message can be recorded on his printer, which may be securely locked in his desk. There is thus no waiting to be called up when some one returns to receive the communication.

The "state of the art" in printing telegraphs, as revealed by the Patent Office, shows great activity and ingenuity. It is quite evident, however, that most of the inventors have entered the field without a very clear conception of the most serious obstacles to success. The first question asked of an inventor when he has completed his machine is: "Will it operate over a telegraph line?" The assumption is that if it will operate over a line the problem is solved. And so it is; but the practical difficulties in producing a printing telegraph are not, as might be and usually is inferred, in the line operating. Experienced telegraphers can meet any reasonable exactions in the line working, and the real difficulty is not in the line requirements, but in the printing mechanism. Here, then, is the stumbling block which has blasted the hopes of a multitude of inventors.

For a clear understanding of the requirements, we should separate in our minds the line working, which pertains to telegraphy, from the printing mechanism, which usually is, or at least may be, a separate contrivance designed to operate with such impulses as the telegraph line transmits. One great reason for the failures in this field has been that almost every inventor has undertaken to construct a printing mechanism of his own, while the real merit of his invention is in the transmission of electric impulses and the distribution of them at the receiving end. The man who can accomplish this in the best way is not usually the sort of man who can design a printer, and the less he meddles with this part of the work the more quickly his invention will take practical form. For demonstration of his system an ordinary typewriter, in the absence of anything better, will suffice, and when this has been accomplished a suitable printing mechanism must be adopted.

It is a problem with which many keen inventors have wrestled, and some wonderfully complex and delicate, but not very satisfactory, contrivances have been evolved by experimenters. Therefore, it is assuming too much to suppose that one has only to give an order to a mechanic and he will forthwith evolve a practical printer. Inventions cannot usually be made to order. To one who knows what is necessary in this connection, and who is acquainted with some of the past efforts, the supreme confidence with which inventors undertake to accomplish results, each for himself, regardless of what others have learned, is not indicative of a clear conception of the difficulties to be overcome. Much time is often wasted in projecting new devices without regard to the experience of others. Inventors generally, and many mechanics, are abnormally sensitive to the least suggestion of a limitation to their ingenuity or skill, and a proposal to refer to the work of others is likely to be received with great disfavor. But it is the part of wisdom and a broad knowledge of men and affairs to combine past experience with the best special skill to accomplish a result.

No printing telegraph can be successful which operates a commercial typewriter. The nearest approach to a successful machine of this kind seems to be the Himrod printer, in which the mechanism of the typewriter is actuated through the medium of compressed air. But the Himrod printer was handicapped by a keyboard with two shift keys, and a method of manipulating the shift key which was confusing to an inexperienced operator. The objection to a typewriter machine is that it requires too much power to operate it. From a superficial view the power for printing is quite independent of the line impulses, since the relays have only to complete circuits from local batteries, which may have currents of any required strength. But practically the relay contacts restrict the amount of current which can be carried within comparatively narrow limits, and, moreover, the duration of the contacts must be sufficient to enable the mechanical movements to be perfected. For this reason the typewriter imposes limitations in speed, and while it is possible to operate under favorable conditions as rapidly as the keys can be used in practice, the margin of effective work is too near the limit of practical requirements to admit of absolute reliance.

No system of printing which involves synchronous movements at distant points can be universally successful, and there are serious objections to any system of multiplexing which gives the line to different writers in succession. Perhaps the greatest defect of such systems, apart from their liability to be interrupted by line disturbances, is the necessary limitations they impose on the duration of contacts. Whether the combinations transmitted for each letter are many or only three, if we are to insure the greatest possible effectiveness and certainty of working, they should not be of uniform duration, since the last impulse should always be made as long as possible to allow for the mechanical work which has to be done in striking the letter. The whole problem now is, to reduce the force required to do this mechanical work. Here

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is the one remaining element of weakness in the printing telegraph.

The use of the printing telegraph can be greatly extended in the general telegraph field if the transmission can be made very much more speedy. Machine transmission, with a printer that will operate at a speed of a hundred words a minute as a minimum in each direction, while working duplex, would bring the system into rather close competition with the Wheatstone, with corresponding advantages of considerable value. The Buckingham machine is operated in this way, but it is difficult to understand how that rather complex mechanism is able to transmit words with the speed claimed for it. If that machine works at the rate of one hundred words a minute, with six impulses over the line for every letter and space, then it is assuredly possible, with other means, to greatly exceed that speed of transmission and printing.

In the writer's opinion, not much can be accomplished by new inventions in the direction of improving the purely telegraphic part—that is, the line working and the local receiving and distributing systems—of the printing telegraph as it stands to-day. Improvements will doubtless be made in minor mechanical details, but the broad principles of operating are doubtless as well worked out generally and as much simplified in principle as is possible.

What is now required is a simple printer to which these principles can be applied. Here is a field for inventive genius. The man who can make the simplest practical mechanical page-printer, to work like a typewriter, and which can be operated with the least possible power at a speed of more than one hundred words a minute, will deserve a rich reward.

In some telegraph systems the printing mechanism is an integral part of the local distributing devices. To these an independent printer would not usually be applicable. But with all those systems in which the last line impulse perfects a combination to operate a key or a printing lever it would be of use.

The tendency of the day in science and the arts is toward specialization. The best and surest progress is made when work is done by men having special qualifications for it. If the construction of a printer for telegraph use is taken up by skilled mechanics, we may anticipate an early solution of the problem which has thus far baffled the inventors of printing telegraphs.

The annual report of the wire department of the city of Boston for 1900 comes to us with the compliments of William H. Lott, the Commissioner of Wires. The subject matter is treated in a most comprehensive and intelligent way, all the work that was performed during the year is fully described, and frequent excellent illustrations and maps contribute much to the interest and clearness of the statement.

TELEGRAPH AGE should go regularly to every one interested in the telegraph.

Twenty-fifth Telephone Anniversary.

The annual stockholders' meeting of the American Telephone and Telegraph Company, held in New York, March 26, marked the twenty-fifth anniversary of the invention of the telephone by Professor Bell. In a retrospect of the progress since that time the report of Acting President Alexander Cochrane said:

"Twenty years ago there were 47,880 telephone subscribers in the United States, and 29,714 miles of wire in use for telephonic purposes. At the end of last year, there were 808,880 exchange stations equipped with our instruments, and 1,961,801 miles of wire were employed for exchange and toll line service."

The following table was presented showing the increase in exchange equipment:

	Jan. 1, 1892.	Jan. 1, 1900.	Jan. 1, 1901.
Exchanges	788	1,239	1,348
Branch offices	509	1,187	1,427
Miles of wire on poles	180,139	509,036	627,897
Miles of wire on buildings	14,954	15,087	16,833
Miles of wire underground	70,334	489,250	705,269
Miles of wire submarine	1,029	3,404	4,203
Total miles of wire	266,456	1,016,777	1,354,202
Total circuits	186,462	422,620	508,262
Total employees	8,376	25,741	32,837
Total stations	216,017	632,946	800,880

On extra-territorial and toll lines there were 101,087 miles of pole lines, and 607,599 miles of wire, being an increase over last year of 11,795 miles of pole line and 105,767 miles of wire. There were on the average 148,528 toll connections daily, and the revenue from this source alone in the year 1900, was $8,972,030.90, not including the earnings of the American Telephone and Telegraph Company itself.

The estimated number of daily exchange connections is 5,668,986, or about 1,825,000,000 per year. The average number of daily calls from each station is 7 1-10, the cost to the subscriber varying in different places from 1 cent to 9 cents per connection. The investment in line construction, equipment, and supplies for the long-distance system up to December 31, 1900, was $16,152,020.72.

The old board of directors was re-elected. A resolution was also passed authorizing the transfer of certain lines and property to the American Telephone and Telegraph Company of West Virginia.

An Unfounded Statement.

The following item, which has not the semblance of truth in it, is going the rounds of the newspaper press of the country:

"Thomas T. Eckert, president and general manager of the Wesern Union Telegraph Company, superintended the interment of John Wilkes Booth, the assassin of President Lincoln, and is said to be the only man now living who knows the spot where the remains lie. The location has never been divulged to his most intimate associates."

As a matter of fact, the body of John Wilkes Booth lies in the family plot in Greenmount Cemetery, Baltimore, Md., where it was interred February 16, 1869.

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TYPEWRITER EXCHANGE

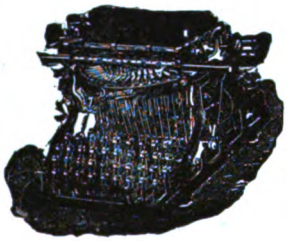
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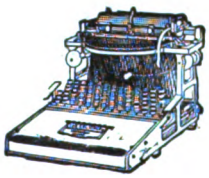


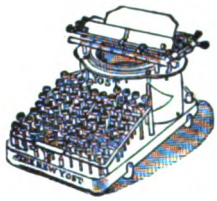
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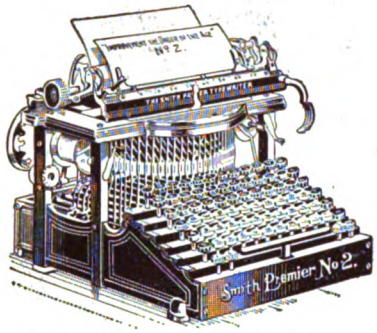
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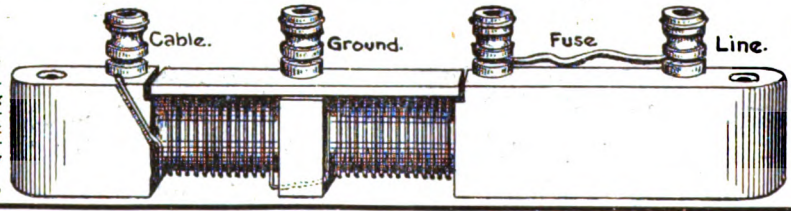
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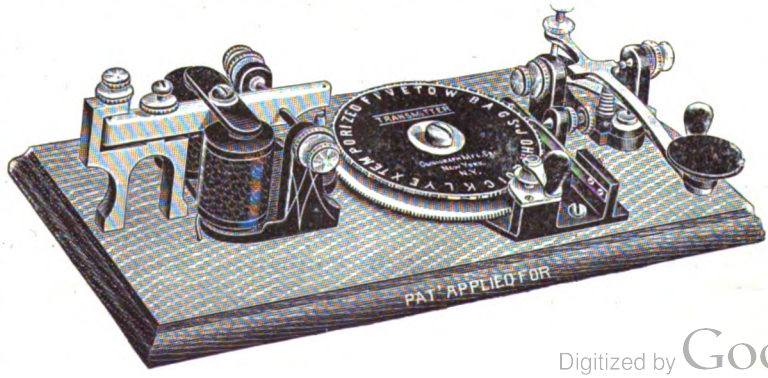
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NEW YORK, April 16, 1901.

On Appointment, Promotion and Method.

The question of fitness for positions in the telegraph service is always carefully considered by those in authority, no matter who the applicants may be or for what places they may aspire. Before an operator receives an appointment at a stated salary to work a certain wire, his ability for the special duties he will be called upon to perform, must be first satisfactorily ascertained. So, too, for the higher positions of manager and of superintendent, skill not only as operators, but the possession of the necessary executive faculty, must first be clearly known and demonstrated. The same care also governs the selection of the general superintendent and of the general manager himself. Thus it will be seen that throughout all grades in the service the constant aim is to secure only men who are fully competent to fill their respective positions.

Naturally there is a large measure of responsibility attached to the making of all such appointments, so that those upon whom this important duty falls realize the necessity of guarding against mistakes and errors of judgment in the selection of an appointee. Therefore, from the directors of a company, down to all in whom is lodged the power of appointment, vigilant scrutiny of fitness is demanded.

All this is a consistent and proper method of procedure, and especially so where such large, peculiar and wide-extending interests are involved as distinctively belong to a telegraph company. This being the case, how important it is, then, for every person in the service who is ambitious for promotion to prepare himself for advancement, for from the up-coming ranks choice must of necessity be made. In controversion of this it is sometimes said, and we are aware to what an extent the opinion is shared in by operators, that "pull," or favoritism, rather than merit, secures advancement, that genuine worth is apt to count for but little, and generally goes unrewarded. Whether or not there be any truth in this assertion, on general principles it cannot be accepted, for its admission would be to negative an efficient administration of the company itself. Therefore, in considering the matter, it should be on broad and generous grounds, rather than from a narrow point of view, hence the insistence with which we have urged that the individual should qualify himself to fill a position higher than the one he already occupies. Valuable services are always in requisition, and intelligence of a practical order is bound to secure recognition.

The detail of telegraphic management, however, may not always be above criticism. When the yoke of certain governing rules adopted in business methods, fits the men but roughly, under which they chafe, and the enforcement of which is apt to arouse within them a feeling of discontent and resentment over what they regard as unfair treatment, it may be wise to pause and consider the truth and the causes of such an unfortunate condition. Much injustice, it is claimed, is inflicted upon the men, particularly in the larger offices, by the compulsory filing of a daily average slip. While, in the first place, this requirement is regarded as a reflection upon the personal honesty of the individual, yet, as it will be seen, it more frequently defeats its avowed purpose by affording a means of successfully maintaining false representation on the part of those who really need to be held in check.

As an instance of this, we are informed that recently in a certain office a young operator who was struggling to make a big average and so gain favor in the estimate of his superior, pocketed some short messages, expecting that he would soon have an opportunity to work them off, and thereby add to his own credit as a rapid worker. In this purpose he was defeated, for a customer calling to inquire regarding one of the messages caused an exposure of the trick. The same thing, however, as is well known, has been successfully carried out hundreds of times before, and has happened in all offices. Frequently long messages have been withheld in order to avoid their early handling and so occupy time that might otherwise be more profitably employed in the transmission of shorter dispatches, hence swelling the record of a day's work. This practice has often resulted in operators carrying about with them forgotten and consequently unsent telegrams.

A flagrant case in point is recalled: An operator informed us some time ago that once, while he was in the "record struggling" business, he pocketed fourteen messages, including two cablegrams, intending to send the lot later, but forgetting to do so carried them about with him for several days. To report such a matter to the chief operator would, of course, have caused his instant dismissal. He consequently said nothing, but tore the messages up and, trusting to luck, left the matter for the company to meet and fight out with irate customers as best it might. In this case,

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"self preservation is the first law of nature," was the operator's reasoning, and it may be said that he still holds his position.

All this goes to prove that the average slip is not always conducive to, nor does it reflect the prompt and extensive handling of business. It has often been said that good and reliable operators have been reprimanded by officials for being slow, when as a matter of fact they dispatched business as it was received, conscientiously handling the long and short messages in their proper order.

This idea of "making a record" on the part of a few in each office, to the detriment of the telegraph service itself and to the prejudice of the fair-minded and upright employees, is a pernicious one. Yet it finds encouragement in the very means established to presumably put the office on its mettle.

Apt illustration of this fact is found in the Government Post Office Department, where complaints precisely of the same nature as above recited are made to the injury of the service. Substitute letter carriers, when detailed to temporarily take the place of old and reliable postmen, absent, perhaps, on account of illness, rush at a breakneck pace around the district assigned them, bent on making a big average, often purposely missing the delivery of letters in one or more stories of buildings, but nevertheless making "time" and "record" as speedy men. When the regular men return to duty they are taken to task and questioned as to why they cannot make as good time as that of the substitutes. It has required the investigation of Post Office inspectors to show that the steady, regular men, those who perform their duties faithfully, could not possibly maintain the high average work day after day, apparently fully met by agile substitutes, without utterly breaking down.

And so it is that the fair-minded operator who is working in an honest manner in the service of the company employing him, cannot compete with the dishonest methods employed by those who are simply straining to establish a record.

Chicago Board of Trade Settlement.

The Chicago Board of Trade has finally adjusted its differences with the Western Union and Postal Telegraph companies and has resumed the sending out of its quotations over the country.

It is about ten months since the public quotations of the Chicago Board were cut off. Since then no official quotations have been sent out. Some of the private wire houses have promulgated quotations based upon actual trades, but they were not official.

It was evidently the belief of the instigators of the Chicago movement that it would be impossible for the country to do a grain business without the Chicago quotations. They imagined that every other exchange would stop, and bring such a pressure to bear upon the telegraph companies that they would throw up their hands and surrender promptly to the Chicago demands.

The exchanges throughout the country have apparently done very well without the aid of the Chicago quotations, and the knowledge of this fact has at last brought the Chicago Board of Trade to its senses. All outside exchanges have profited at the expense of Chicago's folly.

Chicago brokers have made a continuous complaint of a falling off in business, owing to the stoppage of quotations and other restrictive measures adopted and attempted by the directors of the Chicago Board; and the complaint of the Chicago traders had at last become so loud that the directors had to change their tactics.

The complaints of the Chicago grain men were forcibly voiced before the surrender by the head of one of the most prominent firms. He said he had tried to keep loyal to the directors of the Board of Trade, but that their last effort to restrict business —to prevent commission houses operating private wires from furnishing market news and gossip— capped the climax of their folly. He added: "Nearly all of the Board's legislation for the past year has been wrong. The directors should not have tried to shut up bucket shops; it is not their business. The tendency of nearly all their legislation has been to drive business away from Chicago. They have prevented our market quotations from going out to the country, and now they propose to tell a man what he must say over his own private wire."

Talk like this became so general and so rampant that the directors saw that it was time to call a halt. Within one week twenty-two Chicago firms secured memberships in the Milwaukee Chamber of Commerce and threatened to transfer all their business to that point. It may be that the surrender of the Chicago directors, the restoration of quotations and the abandonment of other restrictive measures will head off the movement toward Milwaukee; however, this can hardly restore the trade which Chicago has lost to other exchanges.

Consolidation Rumors.

Once again rumors of consolidation between the telegraph and telephone companies are rife. Differing changes on the subject have been rung out in the daily press, the latest variation being that the American Telephone and Telegraph Company is to absorb the Western Union, on the comfortable assurance that the transfer was to be effected on the basis of a six per cent. guarantee. Editorial writers have speculated on and moralized over the combination of interests and of the "revolution" in prospect of being able to transmit over a single wire at the same time both electric and spoken messages. To accomplish this would indeed be a revolution with a vengeance.

These chronic rumors, which lately have appeared on the average about once a month, are due to stock-jobbing purposes; are wrought out of whole cloth, and have no foundation whatever either in truth or in intelligence. Any feeling of unrest that an operator may experience over these utterances should be promptly banished. The occupation of the telegraph operator has not gone yet.

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EARLY DAYS OF THE TELEGRAPH.

BY S. B. GIFFORD.

The first exhibition of the electro-magnetic telegraph was given in a series of lectures by Prof. Boynton, a public lecturer and resident of Syracuse, in 1845, in the fourth floor of the main office building in Syracuse, which was then called Library Hall. These exhibitions were repeated in other places in central and western New York and aroused great interest in the new invention.

The business men of Utica, Syracuse and Rochester took steps the following summer toward the organization of a company to build a line along the railroad from Buffalo to Albany and Springfield, Albany and New York at that time being without railroad connection. Connection was to be made at Springfield with a line projected from New York to Boston. The business men of New York City did not receive the project with great enthusiasm, although Crawford Livingston, of New York, an associate of the Utica promoters in other business enterprises, was a stockholder and director.

In September of 1845, at the State Fair at Utica, a line about one mile in length was built by Orrin S. Wood and operated during the week of the fair. Mr. Wood subsequently had charge of the construction of an exhibtion line from Buffalo to Lockport, which is said to have been the first line opened to the public in America. This was early in November, 1845. The first message transmitted over a completed circuit was between Baltimore and Washington, May 24, 1844. This was an experimental line.

In the meantime the Utica organization was perfected, with Theodore S. Faxton, John Butterfield and Hiram Greenman, of Utica; John Wilkinson, of Syracuse; Thomas Y. How, Jr., of Auburn; Asa Sprague, of Rochester; Samuel F. B. Morse, of Poughkeepsie, and Crawford Livingston, of New York, directors. Mr. Faxton was elected president and treasurer and Messrs. Faxton, Butterfield and Wilkinson the executive committee.

The construction of the line was commenced soon after along the route from Utica toward Albany and plans made for an early start westward, Utica being midway between Springfield and Buffalo. The Springfield connection was abandoned and the line built to New York. Twenty-eight poles to the mile were placed and two copper wires were strung for a metallic circuit. The insulation was a glass knob on a wood pin.

Offices were established at Albany and Utica January 31, 1846. Syracuse, the third office, was opened May 1, being located in a small room upstairs in the Syracuse & Utica Railroad depot, or, as it was then called, car house, as the building stood over the tracks and extended the entire block from Salina to Warren streets, in the center of the business section. B. F. Partridge was the first operator and Edward C. Fellows, a lad of 12 years, the first messenger. Fellows became an operator and in 1863 was general superintendent of the United States Telegraph, but afterwards went into the railroad service and was general superintendent of the Central Pacific Railroad at the time of his death in 1880.

Other offices were opened as the work of construction progressed, Buffalo being reached July 3 and New York September 9, on which date there were eight offices on the line, as follows: New York, Troy, Albany, Utica, Syracuse, Auburn, Rochester and Buffalo. Additional offices were established from time to time as they could be provided for.

The line crossed the Harlem river on a drawbridge at Third avenue, and whenever the bridge was opened to the passage of vessels the wires were disconnected. This interruption, sometimes lasting an hour or more in the midst of business, and without warning, was a serious drawback.

Newspaper service was started early, and even while Albany and Utica were the only offices, items of news from the New York papers and from the Legislature were transmitted to Utica, and soon after the completion of the line, the papers were allowed a stated time for the exclusive use of the wire, 2 to 3 for the evening and 6 to 7 for the morning edition.

Often the Harlem bridge would be open for a portion of the time, and occasionally for the entire hour that should have been devoted to the newspaper service; consequently the papers received an abridged report or none at all, as the order to give "30" at 3 and 7 o'clock respectively was imperative. Frequently the papers inland made the announcement under the regular heading "By Telegraph," "No report to-day. Bridge open."

The storms of the winter following the completion of the line were very destructive, the copper wire stretching to the ground on the long sections of nearly 200 feet. It having been demonstrated that iron could be used, the copper was sold and sufficient realized to pay for iron wire and the cost of putting it up. This wire was ungalvanized and No. 10 gage. The work of reconstruction was not completed until 1848. The insulation was gradually changed to glazed earthen caps on iron top pins and iron side hooks, which proved very unsatisfactory, and it was generally understood that in rainy weather each office, without waiting for special orders, was to open all the wires except No. 1, and then Albany often was obliged to repeat, and frequently Syracuse also. Indeed, there were times when New York was unable to work with Albany or Albany with Syracuse.

In 1847 a branch line from Syracuse to Oswego was built by private enterprise, but operated only during the season of lake and canal navigation for the first three years. In 1850 two opposition lines were built between New York, Albany and Buffalo. The Merchants', or O'Reilly line, with two galvanized wires, using the Bain instrument, and the New York State Printing Company, with two plain wires, and using the House instrument. The New York, Albany and Buffalo, popularly called the Morse line, put up a third iron wire the same year, but it did not increase the facilities to any extent until glass had been substituted for the earthen insulator.

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The O'Reilly line, consisting of two wires from New York to Buffalo, one wire from Troy to Saratoga, and one wire from Syracuse to Oswego and Ogdensburg, was sold in February, 1854, to Mr. Faxton for $50,000, and turned over to the New York, Albany and Buffalo Company, which company acquired the House line in August, 1856, thus removing all opposition and giving seven wires through the State, which condition of things continued until 1863, when the Morse patents expired and the United States Telegraph Company commenced operations. During the latter year the New York, Albany and Buffalo Company was consolidated into the Western Union, and on December 31 the former company ceased to exist.

The superintendents of the New York, Albany and Buffalo line were Orrin S. Wood, Samuel Porter, John A. Johnston, George E. Allen, Otis E. Wood, Frank H. Palmer and James D. Reid, the latter serving in that capacity about ten years.

Syracuse, owing to its geographical location, has always been an important office to the service, ranking fourth in the State in volume of business. This place has been the scene of many political gatherings, and on such occasions the office handled an immense quantity of press mater. The office was removed in 1847 from the railroad depot to a third story room near by, and the next fall to a second story rear room in a building opposite the present Western Union location, where it remained nearly eight years, then occupying for two years a store in Salina street, removing in February, 1857, to the building which has been its home ever since. In 1850, four years after the office was established, the business, including the relaying for Oswego and keeping the accounts of two lines, was done by the manager, who was also the operator and entire force, and often, in the absence of the messenger, he delivered messages as well.

The office managers at Syracuse have been B. F. Partridge, H. M. Merwin, John D. Stone, David L. Pike, William M. Mallett and the present incumbent, John E. Bierhardt, who assumed charge March 1, 1884.

John D. Stone entered the Auburn office when it was first opened as a student, went to Rochester in July and established the office at Schenectady in December, 1846, was transferred to Syracuse in March, 1848, remaining in charge of that office until August, 1868, more than twenty years, when he resigned to engage in other business. Mr. Stone is still living in Syracuse, at the age of 75.

It is an interesting fact that the village hall of 1845, in which the invention of Professor Morse was first placed on exhibition in Syracuse, became, half a century later, the operating department of the Western Union Company, with nearly 200 wires and employing nearly 125 persons in various capacities.—The Syracuse (N. Y.) Post-Standard.

The articles, "Some Points on Electricity," published regularly in TELEGRAPH AGE, are filled with practical information for the up-to-date operator. Send for a sample copy.

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"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

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"AMERICAN TELEGRAPHY," by William Maver, Jr., enlarged and improved; 600 pages; 475 illustrations; clear, lucid and comprehensive in its treatment of the subject, the ranking work of of its kind, and of high practical value to every telegrapher; bound in cloth; price, $3.50.

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Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

The American Institute of Electrical Engineers held the first conversazione in its history at Columbia University, New York, April 12. Both in the character of the scientific apparatus exhibited and in its social features the occasion was one of great interest. Upward of a thousand persons were present, fully half being invited guests. Several notable exhibits were made, among them Prof. M. I. Pupin's device for the improvement of telephony, the Poulson recording telephone and H. R. Palmer's fac simile picture telegraph.

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The New President of the Telegraphers' Aid Society.

Henry W. Sauer, who, on March 27, was elected president of The New York Telegraphers' Aid Society, is a member of the Western Union force at 195 Broadway, New York. Mr. Sauer was born in the city of New York on December 10, 1858. His first connection with the telegraph was when as a lad of twelve he became a messenger in a local branch office. After a service of two years with the American District Telegraph Company, from the date of its organization in 1872, he found employment with the Western Union Company, then located at 145 Broadway. Here he soon developed into a very capable operator, and from 1876 onward he at different times acceptably filled the responsible position of manager of several important city branch offices, besides the management of offices connected with suburban race tracks. In 1884 he resigned from the telegraph service to engage in



MR HENRY W. SAUER,
President of the New York Telegraphers' Aid Society.

other business. Like many another operator, however, telegraphy had a peculiar fascination for him, and after an absence of four years he returned once more to the key, again with the Western Union Company. Shortly after his return to 195 Broadway he was appointed a traffic chief, a position he was subsequently obliged to resign on account of ill health. Mr. Sauer is a first-class press and commercial operator, and is well and favorably known to the fraternity.

It is related of Mr. Sauer that once, while on a southern trip, a smash-up occurred at night to the train on which he was journeying, resulting in loss of life and injury to many passengers. A short distance from the point of accident there was a small railroad station in which was located the usual telegraph office, but all were closed for the night. Into this building Mr. Sauer effected an entrance, and, cutting in on the wires, called up the dispatcher's office, explained the situation, and soon a wrecking train and an extra passenger relief train were sent to the scene of disaster. For this action Mr. Sauer received the thanks of the railroad company.

A New Telegraph Office at Baltimore.

The Postal Telegraph-Cable office at Baltimore, Md., was moved during March from the corner of Baltimore and Holliday streets to the fine Continental Trust Building at Baltimore and Calvert streets. This is a new structure, the tallest in the city, being fourteen stories in height. The receiving and delivery departments, the managers' and other offices, are all conveniently located on the ground floor, while the operating room is on the twelfth floor, the two being connected by two pneumatic tubes. Speaking connection is also had by means of an interior telephone service. The entire removal from the old to the new quarters was effected inside of twenty days, which is a record-breaking time for transferring so large a telegraph plant. The work was done under the supervision of Superintendent of Construction W. H. McCullum and Chief Carpenter W. H. Begg, of New York; Chief Operator C. A. Stimpson, of Philadelphia, and Manager F. A. Grasty and Chief Operator S. L. Dickson, of Baltimore. The final transfer was made at midnight on March 26, without a hitch of any kind occurring, every wire testing out O. K.

Magnetic Club Meeting.

The Magnetic Club, of New York, Francis W. Jones, president, will hold its spring meeting at the St. Denis Hotel, Broadway and Eleventh street, New York, on Thursday evening, April. 25. Dinner will be served at 6.30 o'clock. The entertainment committee, which is composed of Messrs. Marston R. Cockey, chairman; George F. Fagan and T. A. Brooks, have in view the presentation of a choice selection of song and story, and the affair promises in every way to maintain the record of previous meetings. These quarterly dinners are always eagerly looked forward to by members as affording a delightful occasion of reunion and recreation. The following gentlemen are on the committee of reception: Charles P. Bruch, chairman; R. E. Fagan, John Brant, D. W. McAneeny and Theo. L. Cuyler, Jr. Mr. R. J. Murphy, 195 Broadway, New York, is secretary of the club.

The Bunnell Telegraphic and Electrical Company, 110-116 Beekman street, New York, have issued a new catalogue. It is a well arranged pamphlet of over 220 pages, containing full descriptive and illustrated references to the full line of telegraph and electrical goods manufactured and dealt in by this house. When it is said that nearly 900 cuts are used in the work, an idea will be conveyed of how thoroughly its compilation has been accomplished. The volume is carefully indexed, and the trade will find it an exceedingly convenient and useful handbook of reference.

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Next Meeting of the Old Time Telegraphers and Military Telegraph Corps.

It was thought probable that the next joint meeting of the Old Time Telegraphers' Association and the United States Military Telegraph Corps, which is to be held this year at Montreal, Que., would be during the first week in September, but owing to inability to secure proper hotel accommodations at that time, the dates of meeting now definitely fixed upon, and of which announcement is now made, are for Wednesday, Thursday and Friday, September 11, 12 and 13, respectively.

The convention headquarters for both associations will be at the Windsor Hotel, the finest hostelry in Montreal. Here the meetings will be held, and here also accommodations may be obtained for all who desire to make this hotel their stopping place. President L. B. McFarlane, of the Old Timers, whose home is in Montreal, has made this question of hotel selection a personal matter, and has attended to all items of detail in connection therewith, for he is determined that nothing shall occur to mar the harmony of these arrangements, so important to the comfort and welfare of visiting members. Both he and Vice-President J. E. Hutcheson, of Ottawa, are anxious that this first meeting on foreign soil shall be in every way a worthy successor to those of its predecessors; they have been very earnest in their efforts and are working heartily together to secure this end in view. It is of course too early yet to make any announcement of committees or any plan of entertainment, but in due season full information will be published.

Mr. John Brant, of 195 Broadway, New York, the secretary-treasurer of the Old Timers, states that already, since the last meeting in September at St. Paul and Minneapolis, the names of one hundred and twenty new members to this association have been enrolled. It is expected that this number will be largely increased. Those desirous to join should lose no time in communicating with Mr. Brant on the subject.

Canadian Telegraphs.

In 1847 the Montreal Telegraph Company was organized at Montreal, Que., with a capital of $60,000. Andrew Shaw was elected president and O. S. Wood, the first pupil of Professor Morse, the inventor, and brother-in-law of Ezra Cornell, the founder of Cornell University, was appointed superintendent. At the close of the first year, the Montreal Telegraph Company had 540 miles of wire strung and managed nine offices. Numerous small telegraph ventures followed Canada's first line, but for various reasons they were not successful, and were swallowed up eventually by the older company. In 1851 Sir Hugh Allan became president. The company gradually increased its scope, but in 1868 a formidable competitor arose in the Dominion Telegraph Company, under the management of Mr. C. R. Hosmer. Afterward these two systems were amalgamated under the name of the Great Northwestern Telegraph Company, with Mr. H. P. Dwight as president and general manager. This company, together with the Canadian Pacific Railway Company's Telegraphs (the latter company being a part of the Canadian Pacific Railroad system), control the Canadian business. The principal commercial offices of both these companies are very naturally in Montreal, which, as a matter of fact, is the telegraphic center of Canada.

The telegraph business of Canada from Quebec westward is in the hands of the Great Northwestern Telegraph Company and the telegraph lines of the Canadian Pacific Railway Company, while in the Maritime Provinces it is transacted by the Western Union Telegraph Company and the Canadian Pacific Railway Company.

The Canadian Government owns 2,751 miles of land lines and 240 miles of cables, making a total line mileage of 2,991. The yearly average number of messages sent is 44,400. The greater part of this service is connected with the Marine and Fisheries Department of the Federal Government.

Much of this service is operated at a loss, still it could not be dispensed with without resulting in great injury to shipping and fishing interests.

English Telegraph Dowries.

A question put in the English House of Commons lately to the Government has elicited the curious and interesting fact that the Postmaster-General encourages matrimony among women employees of his department by giving them marriage portions. As much as $50,000 has been given away in this manner in a single year.

Women enter the Government Postal Service, mostly as telegraph operators, at an average age of 16. By the terms of the Treasury minute regulating the compassionate allowance scheme, as it is officially and quaintly called, a woman is entitled to the allowance after six years of service; that is to say, she has reached the eminently marriageable age of 22 when she is first entitled to her dowry from the State.

For each year of service she can ask one month's pay, but in that matter of pay the benevolent and fatherly State is not wildly extravagant. At the end of a woman's sixth year of service, when she is at her very best as a telegrapher, she probably receives no more than $25 a month, so that if she should marry forthwith, her compassionate allowance would amount to just $150. If that same young woman should wait until she was 28, she would then be entitled to twelve months' pay, or the maximum amount of allowance, whichever worked out to the smaller sum, the official maximum of benevolence being $400.

As a matter of fact, the average amount paid has been found in practice to be about $200, and there is no reason to believe that it has any direct bearing upon the marriage rate among female civil servants, who, as a rule, do not take husbands who are able to support them in comfort. The majority of these young women marry outside the civil service, their male colleagues being unable to afford the luxury of a wife until they are about 35.

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The origin of the marriage portion or compassionate allowance is somewhat curious. About seven years ago it occurred to somebody in power that it would be a good thing if he could manage to provide for his poor female relations at the expense of the State. The idea found favor in high quarters, and forthwith the Treasury by administrative decree created a new class of female civil servants, designated "female typist." Appointments were made by nomination instead of by open competitive examination. It was foreseen that the women to fill these posts would come from a somewhat superior social stratum, and would in all probability marry after about six years' service, and in order still further to help the poor relations the compassionate allowance regulation was instituted.

There was not the slightest intention to extend this State benevolence to the civil service generally. It was avowedly to be confined to the "female typists," otherwise poor relations. But ere long the women telegraphers heard of the comfortable little arrangement, and forthwith began agitating in order that its benefits might be extended to them. It took less than six months to convert the Treasury, which is a record in civil service agitation in that country. They were quick to note that the aristocrats were nervous lest their poor-relations scheme should be exposed to the unsympathetic attention of commoner folk with similar encumbrances, and by working on this line they soon obtained the full concession of their demands.

Incidentally the concession of the marriage portion or compassionate allowance to the women had a curious effect upon another civil service agitation, that relating to pensions and superannuation. In the British civil service only thirty per cent. of the pensionable officers reach the pension stage of sixty years of age or forty years' service, whichever occurs first. The remaining seventy per cent. retire earlier or die in harness.

Now, it has been repeatedly declared by the highest Treasury authorities that in order to provide a pension fund civil servants are paid from sixteen to twenty per cent. below their value in the open market of labor; that is to say in effect that the pension is really deferred pay. But under the present system the pension is paid only to the retired officer, and during his lifetime. A man might die in harness after serving the State for thirty-nine years and eleven months, and his widow would get nothing whatever.

Such cases do, in fact, frequently occur, with lamentable distress and gross injustice to those least able to help themselves. The civil servants demand that as the principle of deferred pay has been recognized in the case of women retiring to get married, it ought to be applied in the much more deserving cases of the widows, orphans or dependents of men dying in harness; that pensions should either continue to such dependents, as in the case of army officers, or that the accumulated deferred pay should be paid over to them.

Six years have elapsed since the civil servants formulated their demands in a gigantic petition to the First Lord of the Treasury, but so far they have not been rewarded with the slightest success. Their organization, however, is a very strong one. At the general election last autumn they secured promises of support from two-thirds of the men then elected to the House of Commons, and they have good reason therefore to hope that their triumph over the forces of bureaucracy cannot much longer be delayed.

AULD LANG SYNE.

BY B. S. PILLOW.

"Say, if you can get hold of Joe, tell him old man Pillow says there is a vacancy at 'Bm': he might want it."

Well, I like that: "Old man Pillow!" And I had been deluding myself with the idea that I was still "one of the boys." Really, that remark, heard in a moment of leisure, on No. 5, set me to thinking. Am I looked upon as "the old man?" Yea, verily; and not altogether without cause.

Age had not, it is true, frosted my hair, nor the passing years abated by strength, but memory carried me back to days agone, and I had to admit that I was on the down hill of life.

Away back in '63 the writer began his career in Petersburg, Va., as messenger, and in idle hours attempted to master the mystery of dots and dashes. That he achieved some little success was evidenced early in '64, by the manager sending him to Ivor station, then the terminus of the Norfolk and Petersburg Railroad, to temporarily relieve the military operator there who had been called to Alabama by his father's death.

That was a great day for me. To receive the congratulations of my fellow messengers, and observe just a trace of envy among them, were things not to be despised. For, be it known, operators in those days were not so common as later on, and aspired to amount to something.

Provided with a pass to my destination, and wearing an important air, the writer boarded the train. Soon the conductor came around. With assumed indifference my pass was handed over.

"Ah, a telegraph operator!" said the ticket gatherer.

"Yes, sir," and mentally classing him as a man of remarkably fine perception, I leaned back in my seat to enjoy the ride before me.

In due time we pulled into Ivor, where I was met by the regular man, who, after giving me a few hasty directions, the most important of which was to allow no soldier to sleep in the battery room, jumped aboard the returning train and left me in full charge.

Then the awful loneliness that came over me! Not a person whom I knew, and though there was a regiment of troops stationed there, they did not take the place of the jolly boys from whom I had parted a few hours previous. Whether 'twere better to be an operator in Ivor or a messenger in Petersburg was the question; and there were arguments on the one side as well as on the other. However, business must be attended to, so I took hold and held

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down till noon, when the commissary sergeant, a jolly fellow by the name of Wingfield, came over and informed me that I had been assigned to his mess.

This man soon cheered me up wonderfully, and to-day, if I should meet him, I should lift my hat to one of those true souls who didn't think it unbecoming in a full-grown man to sympathize with a boy away from home for the first time.

For the first few days the monotony in that camp was something to think of, but not to be sought. True, we had a cock fight one day, and even went so far as to plan a fishing excursion for the next. But we didn't go. Not by a good deal. We had other fish to fry, for on the next day General Ben Butler began a series of entertainments in our immediate neighborhood. The General hadn't been invited, to my knowledge, but he was on his way, nevertheless. By way of diversion he dispatched five thousand men to capture Ivor Station. What he wanted with it is one of the unsolved mysteries.

Just at daylight the following morning an orderly dashed into my office, which, by the way, was also my sleeping apartment, and informed me that we were on the point of evacuating the town. As we had only about three hundred men and two guns I have always admired the discretion of Colonel Ratcliffe in retiring before the five thousand. But the redoubtable old Carolinian was not panic-stricken by a great deal, and announced that if we were pressed he intended to make a stand at a creek about seven miles away. This was regarded by one fellow as a good joke, but others of us who knew the mettle of our leader were anxious enough to get away from that creek, for we knew that if we were "pressed" the doughty Ratcliffe would "make a stand," and that meant bloodshed and certain defeat by the overwhelming numbers at our heels.

Just one day previous our mess had drawn rations for a week; among those coming to me was a fine eight-pound Southampton ham. Think of that, ye ragged rebels, and wearers of the blue! A juicy, uncut ham! Along in '64 rations were rations, to us rebels, at any rate. Hard tack, musty bacon, a few beans or peas, sometimes only parched corn, formed the bill of fare of our gallant boys, while the sight of a field of roasting ears made the blood tingle and the heart grow light.

Under these circumstances, judge of my feelings when I found that no place could be found for transporting my ham! Too bulky for a haversack and too unwieldy to be carried in the hand. Truly, the situation was grave—no, that's not the word; gravity doesn't express it; it was simply appalling. Finally I was forced to leave it with our cook, Mandy, and I fancy that her grief in bidding us farewell was somewhat mitigated by my grudgingly bestowed token. In a long and varied experience the writer has met many "hams" since that fateful day, but from none of them has he parted with such poignant feelings as were his in bidding adieu to that choice Southampton product.

Before leaving Petersburg some patriotic chap—whose name has escaped me—told me that to lose my instruments while at the front was equivalent to the loss of the regimental flag. From that good hour which witnessed the beginning of our retreat I have looked for that enthusiast. I have somewhat to say to him. I wish to use expressions which he will understand. In a word, I desire to unburden myself. The instruments with which my office was equipped consisted of a relay, broad and bulky, and a register, both mounted on a *marble* base; old time abominations, the recollections of which, even at this late day, send shudders through my anatomy. They, together, must have weighed twenty pounds. Think of that! Lugging those old rattle-traps on a march of about four miles an hour, with five thousand blood-thirsty Yankees in our rear! I have a vivid remembrance of being tempted to drop them in the creek as we marched over a rickety bridge, and but for the remark of that would-be friend should certainly have done so.

On setting out we had been told that our destination was Weldon, N. C., a trifling march of only about seventy miles. Encouraging, wasn't it? After making about eighteen miles by eleven o'clock, however, we were overtaken by a courier from General Beauregard, ordering the regiment to a point ten miles from Ivor, where a train would be waiting to convey us to Petersburg. Ah, General Beauregard was a great soldier; and, furthermore, he employed the very best of couriers. We took our hats off to the orderly and blessed the General.

No time was lost, as we right obliqued, and by 2 P. M. we were on the train, the writer about used up, but cheerful over the improved conditions.

By 6 o'clock we saw the spires of the Cockade City, and the next morning the embryo operator was down at the office relating his experiences, with that strict adherence to facts for which he is noted, but which were received by the office boys with a liberal allowance.

Once an operator, I, of course, did not resume my duties as messenger, and in a day or two was ordered—but the story is already too long.

PACIFIC CABLE.—A contract for a cable steamer larger than any ever built has been let to an English firm. It will take 10,000 tons of cable for the stretch from Victoria, B. C., to the Fiji Islands, and this is a larger amount of cable than any steamer afloat can carry. Surveys are now being made for proper landing places for the British Pacific cable on the British Columbia shore, and no doubt Sandy Beach will be selected as it has been proven to be an ideal spot for the purpose. Mr. R. E. Peake, a member of the firm of Clarke, Forde & Taylor, a well-known firm of telegraph engineers, of London, England, has charge of this survey. The contract for laying the cable, involving an expenditure of £1,795,000, calls for its completion next year.

Every telegrapher who loves his profession, who is determined to master its technicalities, and thus insure for himself the confidence and respect of his official superiors and place himself in the direct line of promotion, should subscribe for TELEGRAPH AGE.

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Letters From Our Agents.

SAN FRANCISCO, CAL., WESTERN UNION.

The recent enlarging of the operating room and the great number of new faces, makes this office appear almost like another place.

Arrivals: Messrs. Tehan, Higgins, Davie, Thornton, Cooper, Goodwin, Moore, Wulzen and Mitchell.

Sick list: Messrs. Dorgan, Lowell and Rood.

Races at Tan Foran and Oakland tracks, occurring at the same time, took quite a force of operators, and the regulars as well as the extras were made happy by having as much extra as they cared for.

Mr. Charles Weiler has returned from Reno, Nev., where he went in December last.

Mr. Hugh Holmes has been at Bakersfield for several months.

Messrs. Harry Simon and Frank Ford are holding the Oakland track race wire service down, while Mr. Peppin and Mr. Charles House are at Tan Foran.

Mr. W. H. Wilson, of Reno, was in town a few days since on a short visit.

Mr. Charles Myers is manager of the new office opened near the Presidio.

Messrs. McCandlish and Summerl have returned from Sacramento.

The recent blizzards in the East made very lively times in this office. Two Wheatstone wires were run day and night, and all who could took a hand in copying tape. This office is developing some very expert combination men, who can work their set on short circuit, sending tape as well as when the wire is o. k.

Traffic Chief Charles Willoughby leaves for a visit to his parents near Chicago on April 8. He will also visit the Buffalo Exposition and New York.

Mr. Robert Weeks now walks the floor and looks out for the Chicago and Los Angeles wires with the same business-like air that he has displayed for years in working the heaviest wires in the office.

Miss Viola Yoakum, a Wheatstone operator in this office, died suddenly from blood poisoning, occasioned by vaccination. She worked up to within thirty hours of her death, and no fears were felt that it would prove fatal. She was a general favorite and her death cast a gloom over the entire office. An appropriate floral tribute was procured by the force, and a large number of friends attended the funeral.

Mr. Charles Berg, formerly of the Western Union office, is taking night report at Santa Barbara.

LOUISVILLE, KY., POSTAL.

On the first day of January, 1891, the Postal Telegraph-Cable Company made its first appearance into Louisville, locating on the southeast cornert of Third and Main streets. Mr. Philip H. Cooke, at that time wire chief for the Western Union in this city, and former manager of the old Mutual Union, became manager, assisted by Mr. John H. Miller, as day chief; Mr. Frank Books, night chief; Mr. O. W. Krider, operator, and Mr. Benjamin W. Ditsler as counter and delivery clerk.

The Postal Company was exceedingly fortunate in securing Mr. Cooke as manager, as under his efficient direction the interests of the company have been so ably managed that business increased rapidly, and it is due to his untiring zeal and energy that the Postal has become so popular among the business interests of Louisville.

The rapid increase in business was met by a continual increase of facilities and force, until to-day the Postal in Louisville has one of the best equipped offices in the South. Besides Mr. Cooke, the personnel of the office at present is as follows: Richard Hewitt, cashier; Roy C. Freeman, clerk; Benjamin W. Ditsler, delivery clerk, with L. A. Pelton as assistant; Samuel Smith, night delivery clerk; Frank L. Parks and Harry A. Weaver, check clerks. The operating room is in charge of our congenial chief, O. W. Krider, assisted by A. L. Fogg and L. W. Janes, night chief. Operators: John H. Miller, James J. Clary, Frank J. Welsh, M. L. Wilson, James Carter, H. W. Mayhall, John Beninger, J. J. Quinn, Joseph Dunigan, T. J. Gray and J. A. Cahoe; J. D. Holland at the Courier Journal, and F. E. Books, extra. Branch office operators: James Stucker, Alvin Silverman, C. A. Cuneo, R. C. Rogers and P. W. Robertson. Philip Cochran is head lineman, with Albert Krider, assistant.

SOUTHERN PACIFIC TELEGRAPH SYSTEM.

The Coast Division of the Southern Pacific is having quite a boom since through trains are run over this line to Los Angeles. About twenty-five night offices have been established, and a large addition to the dispatching force at Third and Townsend streets. This will be one of the busiest divisions of the system in the near future.

Mr. J. B. Donner, superintendent of telegraph, Southern Pacific Railroad, has been confined to his home with grip for several weeks.

ST. LOUIS, MO., WESTERN UNION.

About three hundred 185-ohm special resistance lamps are being put in on our switch and loop boards, under the supervision of Messrs. L. N. Boone, assistant wire chief, and Michael Houlihan, lineman.

Mr. A. E. Van Tyne, our wire chief, spent March 21 and 22 at Moberly, Mo., putting in repeaters.

Messrs. Herman Weyerman and George J. Goehringer returned from Jefferson City, Mo., March 23. They were assisting during the session of the Legislature and have become quite expert lobbyists. They introduced a bill abolishing fast senders, but it failed to pass.

Mr. Geo. Monteith resigned recently to accept a position with the Boyd Commercial Company, of this city.

Miss Kate Reilly, of the Wheatstone, resigned March 27, and left for Chicago.

Mr. T. W. Thielan, of Chicago, was a visitor recently, being on his way home from Red Bud, Ill., where he attended the funeral of his father.

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The following was overheard at the desk of the force chief, recently: "Can you take Denver?" "You bet your sweet life I can," replied the operator "if there is a key to it; just give me a key and I'll work any wire you mention!"

MILWAUKEE, WIS., WESTERN UNION.

The following resolutions on the death of E. M. Shape, whose death occurred on March 21, and who was chief operator of this office for more than thirty years, were recently adopted by his fellow employees:

Whereas, Through an overruling Providence, E. M. Shape, a person especially recognized and admired for his rugged and sterling integrity, and for his high appreciation of the moral obligations existing between man, has been suddenly removed from our midst; and

Whereas, During his long and honorable career in the city of Milwaukee, Wis., he has served as chief operator of the Western Union Telegraph Company with such fidelity and marked ability as to guard well the best interests of all concerned, and to reflect great credit and honor upon himself; therefore be it

Resolved, By the undersigned co-employees and friends, that in his death they have lost a valuable, honest and noble friend, whose record in official and private life was without blemish, and whose service was of the most valuable character.

Resolved, That we tender to the bereaved family of the honored dead our most earnest expression of sympathy, assuring them that we all mourn with them the loss of one so universally respected.

BALTIMORE, MD., WESTERN UNION.

Among late changes are the following: Resignations: John Fitzpatrick, to The Associated Press; Charles Crudden, manager dry goods district, to a clothing firm at Lancaster, Pa; Harry Goldberg, to a broker office; William Daley and J. A. Burt. Edward Hanlon and William Moore have been transferred from branch offices to the main office. Mr. Spencer Kendall, clerk, has been appointed manager at McElderry's Wharf office. Addition to extra force: Miss Mary Gaffey, late of Philadelphia. Recent visitors: F. D. Cudlipp, Richmond, Va., and Mr. Harvey, formerly operator at Fort McHenry, who has just returned from two years' service in Porto Rico.

KANSAS CITY, MO., POSTAL.

Mr. Clyde Forcey, late manager for this company at Sedalia, Mo., is a new arrival and has been assigned to a branch office in the broker district.

Mr. Claude Reed has resigned to accept a better position with the Western Union, this city.

Operators Washington Summers and Clyde Edwards, on the first St. Louis wire, some days ago handled 920 messages. Operator Summers, the following day, received 140 messages in two hours. Of course, this doesn't break any records, but it's not so slow.

Mr. Emmett Gordon, manager at Sedalia, who was sent to Jefferson City to help out during the session of the Missouri Legislature, has returned to Sedalia.

CHICAGO, ILL., WESTERN UNION.

Much pleasure is expressed at the news from G. F. Bassett, who is very popular in this office, of the recovery of his little daughter from an attack of scarlet fever.

Mr. Barney White, who has been very ill, is again at the key.

Mr. Marcus W. Smith, an old-time Chicago telegrapher, died of appendicitis March 28. His widow has much sympathy from all.

Mr. E. Moffitt, manager of the Rockford, Ill., office, and Mr. H. F. White, manager at Elgin, Ill., were recent visitors here.

Mrs. Ames has returned to the office after a long winter's rest.

Mr. Samuel Weller, the gallant signal corps officer, has received congratulations from all because of the birth of a son to him.

A lineman sent a message to his general foreman as follows: "Transferred seven miles of wire, trimmed trees and got married to-day." Surely he did his duty for one day at least.

Mr. F. E. Abbott, who works the first St. Paul wire, met with a very bad accident recently as he was boarding the train at his home in Maywood, Ill., receiving injuries to his right foot, which necessitated the amputation of the large toe. He has the sympathy of all the fraternity.

Superintendent F. H. Tubbs and party attended the funeral of the late Chief Operator E. M. Shape, of Milwaukee. They occupied a special car furnished by the Chicago, Milwaukee and St. Paul road. Those present were F. H. Tubbs, superintendent; W. J. Lloyd, assistant superintendent; Frank Richardson, traffic chief; D. S. Anderson and wife, E. G. Sheckler and wife, J. F. Robinson, foreman of lines; W. B. Paddock, Frank Likes, Benj. Powell, Jas. A. Cummins, Chas. F. Fuhrman and Assistant Chief Operator Powell, of The Associated Press. Among the operators were: M. M. McCulloch, J. S. Henderson, J. W. Campion and others.

New arrivals: W. F. Callendar and I. P. Diefenderfer.

PHILADELPHIA, PA., POSTAL.

The severe illness of Cashier George G. Glenn's brother, at Harrisburg, Pa., necessitated a speedy trip by the former to that place. The crisis, however, was safely passed and the patient is in a fair way to recovery.

Mr. W. B. Burt has been transferred to the South Front street office in place of Mr. Wm. McIntyre, resigned.

Messrs. Chas. Koch and Frank Williams are both off on sick leave.

Quite a cheerful welcome greeted the return of Mr. Edward Addletown, who had been away quite a long time in the mountain district, accompanying his wife, who is an invalid.

Since the removal of the North American to their new building, Mr. H. Nauer has not had quite so much special work to look after at the "overflow" office in the second district American District Telegraph office.

You can't afford to be without TELEGRAPH AGE.

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NEW YORK, POSTAL.

Mr. L. E. Harper, of the St. Louis bonus wire, is absent on account of illness.

Mr. Wilbur O. Eastlake, of the Evening Post Postal staff, has returned, after two weeks' absence occasioned by sickness.

Transfers: A. L. Ewing, from split trick to Buffalo bonus wire. City departments to Western Division: G. R. Knoess, Stephen Fitzgerald, D. D. Calvert. R. M. Sinclair from split trick to 8 A. M. Mr. B. F. Wilson assigned to Pittsburg bonus wire.

Resignations: W. I. Riker, of Pittsburg bonus wire, to engage in poultry business near his old home, Newton, N. J.; C. P. Monett and J. H. Fitzgerald, of western division, to take an extended vacation after a hard winter's work.

The Postal branches in the theater district are manned by the following efficient staffs under supervision of a general district manager: 1269 Broadway—J. F. Ellis, chief operator; B. J. Kearney and T. R. Harvey, operators; Wm. Miller, J. J. Pinkerton and F. Pesek, clerks. 14 West 27th street—J. J. Kelly, day operator; Wm. Wolf, night operator; W. Alexander and L. Mundy, clerks. Townsend Building, Broadway and 25th street—Miss E. K. Buckner, operator. Presbyterian Building, 5th avenue and 20th street—Miss Marshall, operator. 276 8th avenue—Mr. O. Whitbeck, operator.

NEW YORK, WESTERN UNION.

At the first monthly meeting of the newly elected Executive Committee of the New York Telegraphers' Aid Society, held at 195 Broadway, April 4, President Sauer in the chair, announced the following committees for the ensuing year: Membership—H. W. Sauer, E. E. Brannin, T. M. Brennan, A. J. Gilman, M. F. Gaffney, J. Gschwind and Miss S. Dougherty. Printing—Geo. Leveene, R. C. McDonald, W. W. Price, J. McParlan and E. T. Dempsey. Relief—E. F. Howell, C. Shirley and Miss A. McShea. Trustees—T. M. Brennan, J. K. Calvert and J. C. Robinson. After disposing of routine business the president nominated William J. Quinn for financial secretary and Horace C. Fardon for recording secretary. Both gentlemen received the full vote of the committee present.

James Gilchrist, for many years operator and reporter on the floor of the New York Stock Exchange, died at his residence in this city on Friday, April 5. Mr. Gilchrist had been in poor health for some time, but remained at his post until a week before his death. His funeral, which took place on the 7th inst., was largely attended by the telegraph profession, among whom were: H. W. Sauer, E. G. Cremmins, N. Seagrave, Wm. Egan, M. D. Medler, P. Crary, H. Clark, J. H. Hutchinson, J. S. Bennett, S. H. Mabie, J. J. Kihm, W. A. Henessy, F. P. Talbot and Wm. Lynch. Mr. Gilchrist leaves a wife and young daughter.

Dr. E. C. Potter, of Newark, N. J., an old time operator, was recently shown through the office, and, not having been in the business for twenty-five years, was amazed at the progress made since he left.

Mr. John Cleary, of the Commercial News department, has returned to duty after a month's sickness.

Miss Essie Bradshaw, of Meriden, Conn., and Miss Adelaide Burnham, of Unionville, Conn., were recent visitors.

Mr. John O'Connor, who has been away for several months acting as an editor for the Publishers' Syndicate, returned to duty at this office April 4.

Mr. Frank L. Gerber has returned from Jacksonville, Fla.

Mr. W. P. Brady was appointed day number clerk of the general operating department April 1.

April 1 Mr. L. B. Clark, our genial number clerk, was appointed an operator on the regular day force. Mr. Clark is a bright, courteous young gentleman and has the best wishes of his many friends.

Mr. J. M. Brannin, of Clark's department, resigned recently to enter other business at Washington, D. C.

On Sick Leave: Messrs. William Calvert, Perry Irish and Thomas T. Griffin.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

Don't give to an agent; send for us. Repairs on typewriters expressed or sent in to shop at reduction, to operators. Second-hand machines low price. Supplies, word-counters, etc., $2 up. Parts and attachments made. Wall & Butler, Typewriter Repairs, 57 Dey Street, New York. (Adv.)

BOSTON, MASS., POSTAL.

Mr. Joseph A. Coughlan has been appointed assistant night chief, vice F. M. Smith, who resigned to accept a position with this company in New York. Mr. T. Shannon has been assigned to Mr. Coughlan's position on the first New York wire, and C. E. Smith tries his hand at piece work.

$100 Reward, $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages and that is Catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials.

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Chief Operator F. B. Travis is spending a week in New York, accompanied by Mrs. Travis. Night Chief C. J. Foley fills his place during his absence.

Mr. W. E. Hasty has been appointed manager at the Stock Exchange, vice C. W. Fernald, resigned, to go with a broker.

Mr. T. F. Sullivan has been appointed to the regular night force, and Mr. C. J. Sheehan goes on straight days.

Mr. J. D. McDonald has been assigned to the Chamber of Commerce office as acting manager, Mr. J. B. Clancy having been granted a leave of absence for six months to enable him to perform his official duties as State Senator.

Mr. R. P. Dow has been appointed operator at Merchants' Row office, relieving Mr. W. A. Connor, who goes on days at the main office.

W. S. Dickinson and C. J. O'Connor are new arrivals from the Western Union, this city.

CHICAGO, ILL., POSTAL.

The announcement of the marriage of Mr. John M. Biggins, of this office, in the April 1 issue, was an error. Mr. Biggins is still numbered with the eligibles.

ASSOCIATED PRESS NOTES.

Mr. E. Wells, of the Albany, N. Y., bureau, has been transferred to Newark, N. J., W. J. Gormery succeeding Mr. Wells at Albany.

Mr. P. O. Sullivan has been transferred from Newark, N. J., to the New York office, days.

Mr. W. L. Waugh has returned to service at New York, after a severe illness.

Messrs. H. Graham and S. Trautes, of New York, have resigned.

Mr. W. M. MacMahon has been appointed to the position resigned by Mr. Graham.

Mr. J. W. Fitzgerald has been appointed to a position in the Baltimore, Md., bureau, vice R. A. Lyons, transferred to the editorial department.

PHILADELPHIA, PA., WESTERN UNION.

The Aid Society's euchre, hop and banquet, held on the 10th inst., was one of the most successful affairs of the kind ever conducted by the telegraph fraternity in this city. There was a large attendance, all present being in evening dress, and the assemblage was in every respect a brilliant one.

Too much credit cannot be given to President Frank E. Maize, Chairman John A. Sisk and their assistants. Miss Grimley, Miss Golden and Miss Mintzer, of this office, and of the Committee of Arrangements, also deserve special mention for their active work in behalf of the affair.

Fifty prizes consisting of valuable and useful articles were awarded at the well patronized euchre.

President Maize with Mrs. Maize led the grand march. Mr. Virgie Hudgins was master of ceremonies, and acquitted himself admirably. The menu was an exceptionally fine one.

The handsome design for the outside cover of the programme was drawn by B. M. Langstroth, of this office. One side of the programme was embellished by an excellent likeness of President Maize. The dancing was much enjoyed. The list embraced eleven numbers, the selections being credited as follows: "73," "Maize," "Mecredy," "Western Union," "Postal," "Fire Alarm," "A. D. T.," "Long Distance," "Philadelphia Local," "Bell," "30."

H. Woerner, of this office, is located temporarily at Altoona, Pa., with Manager A. G. Strickland.

Night Manager J. P. MacLoraine has returned from Aiken, S. C., where he spent a month for the benefit of his health. Judging from his looks he seems to have thoroughly regained it.

On April 10 Mr. W. Vance Compton, Western Union manager at Chester, Pa., was married to Miss Margaretta Nelling Fairlamb, of Glen Olden, Pa. The AGE and many friends extend congratulations.

Much sympathy is expressed for J. A. Janney, of this office, in the loss of his daughter, who died recently of pneumonia. Miss Janney was just 22 years of age and well beloved by a large circle of friends.

Another bereaved fellow worker who has our sympathy is Mr. Gray, of the Philadelphia, Reading and Pottsville Telegraph Company, whose young wife died recently.

New Postal Office at Cleveland, Ohio.

The main office of the Postal Telegraph-Cable Company in Cleveland, O., has recently been moved from 170 Superior street to the Mercantile



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Bank Building, corner of Superior and Bank streets, for the purpose of affording the operators and clerks a better lighted and ventilated operating room, and also making the receiving and delivery departments more convenient to the majority of the patrons of the company.

The operating room, which is seventy-seven feet long and twenty-seven feet wide, is located on the sixth floor, with large adjacent rooms for the motor dynamos, storage and clerical work. The hand- and three sextette operating tables, and a total of eighty telegraph wires entering the office.

The machines for generating the electricity necessary to operate the wires, are Sprague Electric Company's motor dynamos, the motors being operated by electric light current from the street mains, and the dynamos supplying the currents to the apparatus.

The receiving and delivery departments are in the basement, which is one or two steps below the



OPERATING DEPARTMENT, POSTAL TELEGRAPH-CABLE COMPANY, CLEVELAND, OHIO.

some switch case contains two fifty-wire modern spring jack switchboards, besides spring jacks for city loops and legs, the whole being wired up as neatly as a pianoforte, and embracing the Skirrow removable cord plan, by which weights and festoons of idle cords under the shelf are obviated. A very convenient repeater table in front of the switch contains four quad sets, ten duplex sets, six half Morse repeater sets and twelve full Morse repeater sets. In the room are twenty quartette

street level, and are very handsomely fitted up. A pneumatic tube furnished by the Transfer Tube Company is operated by a reversible blower driven by an electric motor.

The whole equipment of this office is of the most modern character, designed to accelerate and safeguard the transmission of telegrams. It was carried out under the supervision of Electrician S. F. Jones, of the Electrical Engineer's Department, New York, assisted by Mr. T. W. Carroll, elec-

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trician of the Western Division; Mr. C. W. Bennett, Mr. J. H. Hess and Mr. E. W. Carman, all of whom were ably supported by General Superintendent E. J. Nally, Superintendent of Construction C. M. Baker, Superintendent of District F. W. Conger and others.

It is not too much to say that this new telegraph office, for character of arrangement, wiring and disposition and kind of apparatus, stands at the head of any at home or abroad.

Mr. James H. Mason, electrician, 150 Nassau street, New York, has issued a "Catalogue of Educational Electricity Supplies." Reference is made more especially to goods of which Mr. Mason himself is the inventor, and there are a number of illustrations which show these to advantage.

M. D. SHAW FUND.—Amount previously acknowledged in our issue of February 16, $66; from J. C. Watts, New York, $6.50; total, $72.50.

The Postal Telegraph-Cable Company has opened an office in Lynchburg, Va., with Mr. W. P. Buckley, late of Richmond, Va., as manager.

Information wanted of present whereabouts William S. Reniers, last heard from working for Hamilton Bros., Minneapolis, Minn., three years ago. If dead, please give place of death, with full particulars. J. J. A. Gilrain, Western Union Telegraph Co., Boston, Mass. (Adv.)

WANTED—The address of A. H. Reese, formerly telegraph operator at Detroit. He is supposed to be in the West. Address W. H. Flynn, 760 Cass avenue, Detroit, Mich. (Adv.)

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Readers of the TELEGRAPH AGE are referred to the advertisement of the Montauk Cable Company on page two of the front cover. (Adv.)



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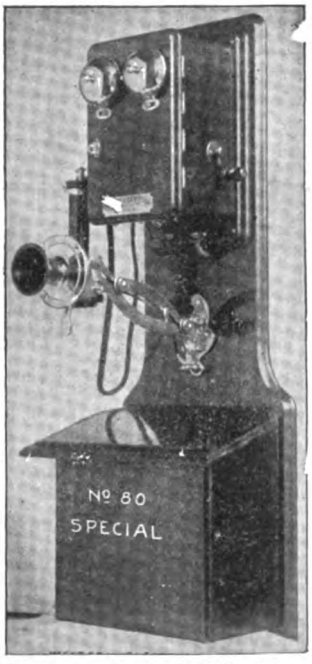
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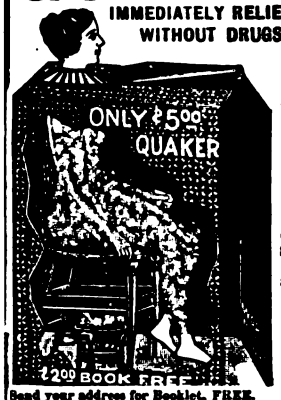
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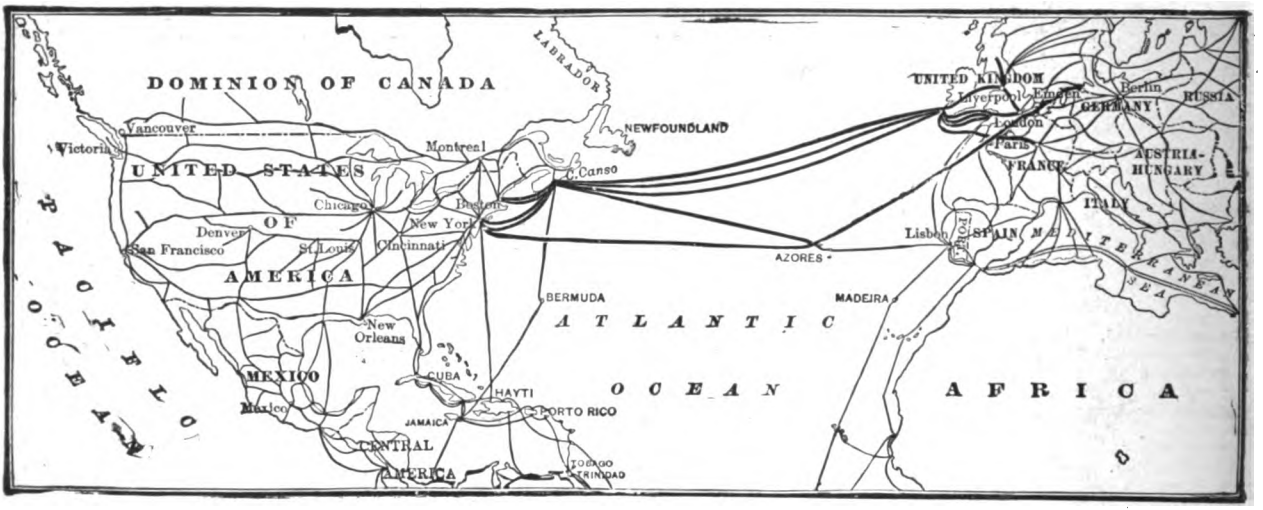
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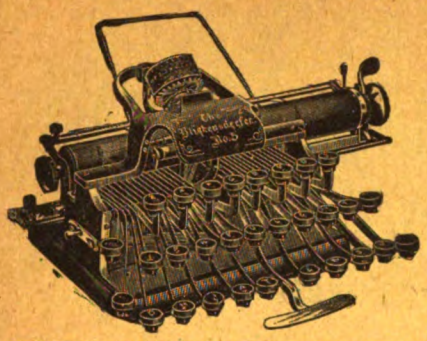
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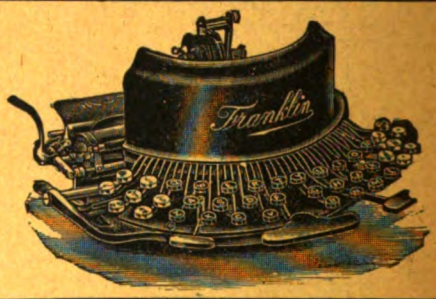
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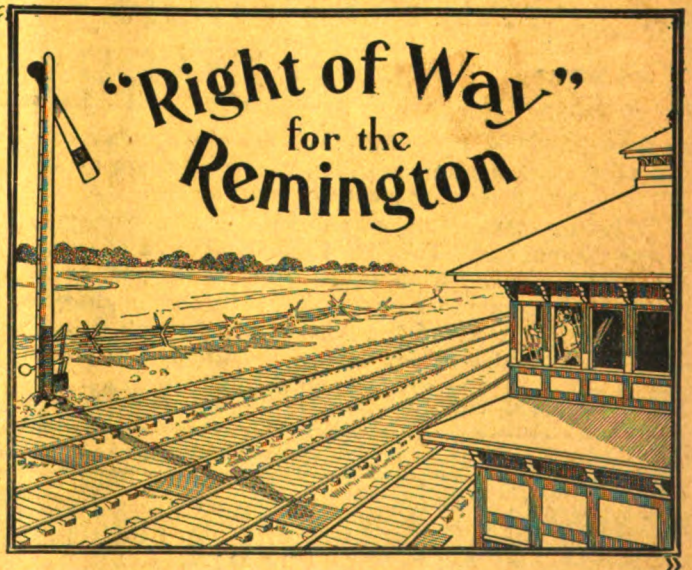
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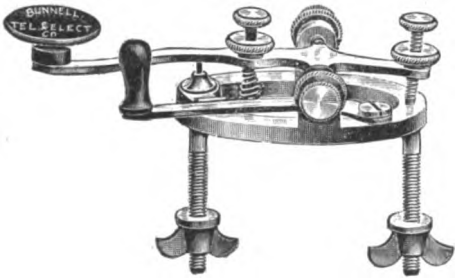
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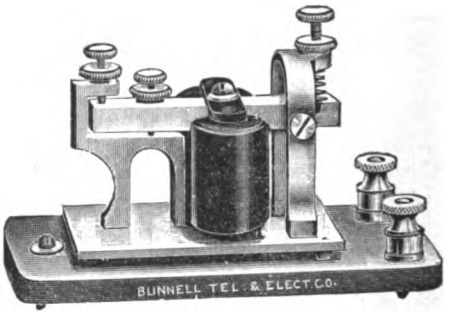
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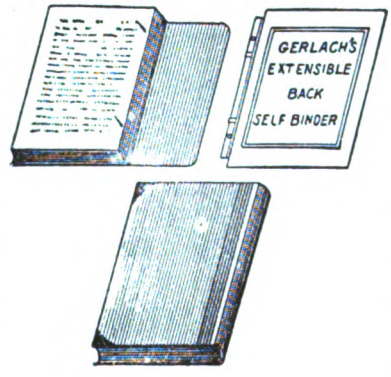
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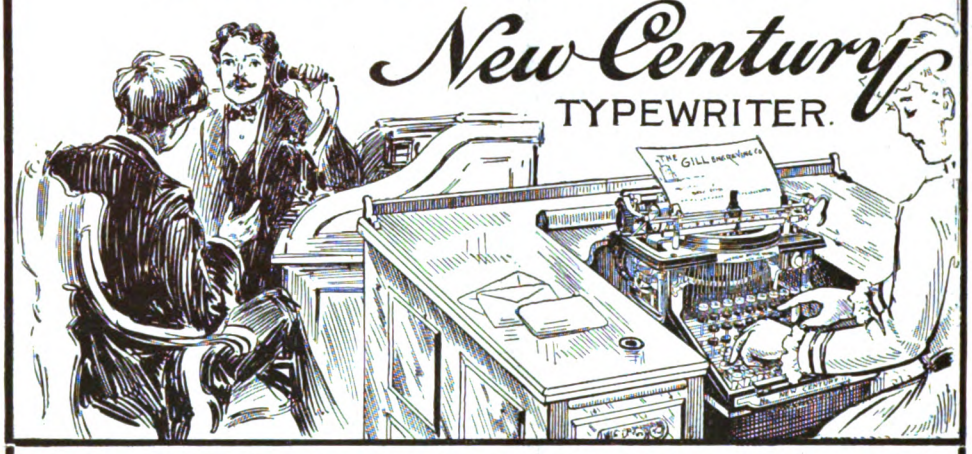
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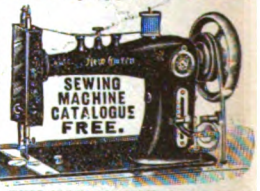


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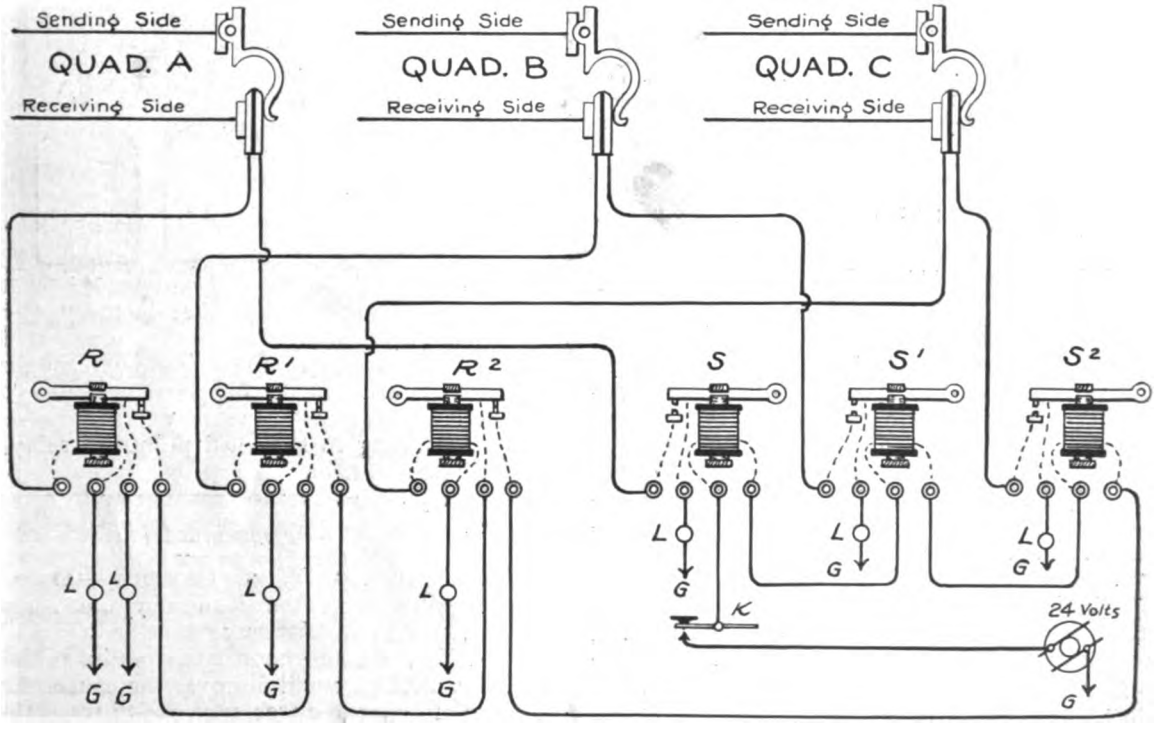
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BY WILLIS H. JONES.

Mr. James B. Dillon, traffic chief of the Louisville, Ky., Western Union Telegraph office, contributes the following for the benefit of the readers of TELEGRAPH AGE:



"The accompanying diagram is so simple that it really explains itself. However, a few words will make it plainer. The idea is to hitch up three or more quadruplexes or duplexes (the limit being reached by Ohms law only) so all can hear everything that is sent by any one on the circuit. Of course it acts as if all were single line wires.

"The sending circuit is from key *K* through magnets of repeating sounders *S*, S^1 and S^2, through the contact points of repeating sounders *R*, R^1 and R^2, to lamp and ground at points of R^2. The manipulation of *K* will actuate all quadruplex transmitters, as it will be seen they are in circuit with contact points of repeating sounders *S*, S^1 and S^2. Should any one desire to break, the opening of any of the quad keys demagnetizes all magnets in group *S*, S^1 and S^2, as they respond to opening and closing of contact points of group *R*, R^1 and R^2. Such a combination, I think, will prove very useful where combination specials or bulletin service is desired. Repeating sounders *R*, R^1 and R^2 should be equipped with bridging switches at the contact points so that those not in use may be closed at such points by the bridging device."

While Mr. Dillon's idea of controlling the sending apparatus of all quadruplexes in circuit from one key is not new by any means, the ingenious manner in which he attains that end, as shown in the accompanying diagram, makes the latter an instructive contribution for those who delight in studying the possible wire connections of telegraph apparatus.

Some time ago this journal printed a contribution from a correspondent showing that in some

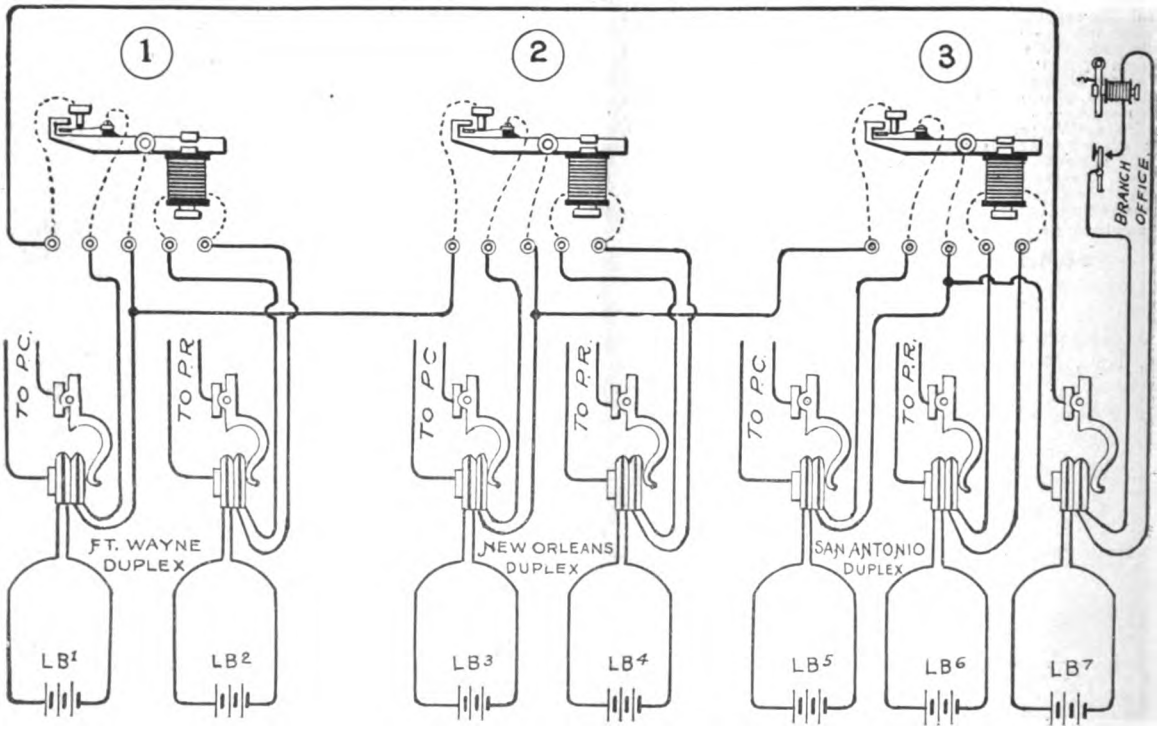
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of the Postal Cable-Telegraph Company's offices they accomplished practically the same thing by inserting an extra key in a common ground wire for the sending apparatus. The opening of this key of course demagnetizes each transmitter, which closes when contact is again made.

Mr. J. C. Langley, of the Dallas, Texas, Western Union office, sends the following relative to another repeating device.

"Herewith is a diagram of our race circuit repeaters, showing details.

"In practice, while we use five or six sets, this diagram is cut down to three because that number will show the principle, and in consideration for the artistic sensibilities of anyone who may see it and consequently demand that I do as little of that kind of work as is consistent with a clear exposition of the apparatus.



"This arrangement was adopted in order to meet the wishes of the pool-room men, who desired that each room on the circuit might hear every letter on it and be able to break and communicate with each other as well as with the sending office. With all keys closed and the circuit at rest, it is easy to see that all the pole-changer locals and the local room loop are in one circuit.

"Beginning at the local room, it traces through the top of the jack to the first post of set No. 1, thence through the tongue to post No. 2, thence through shunt wire to post one of set 2, and in like manner through set No. 3 to back of pool-room jack, through local battery and to starting point, all the local batteries connected with the pole-changers being in the circuit.

"Should one point desire to send—say New Orleans—the opening of that key would open the local contact points of the duplex at Dallas, break the circuit of L. B. No. 4, release the armature of set No. 2 and open all the pole-changers at the tongue except that on the New Orleans duplex, which would be held closed by the circuit of L. B., No. 3 being maintained through the tongue, armature and third post of set No. 2, thus keeping the polar relay at New Orleans closed. Opening the key at the local pool-room will, of course, open all the pole-changers.

"Three point switches are inserted at convenient places for cutting out any particular set when desired.

"We use two gangs, connecting them together when neceessary by a double-ended double-conductor cord, inserting one wedge in the pool-room jack of one gang and the other in the pool-room jack of the other gang.

"When necessary to put a single wire in the circuit, which sometimes happens, we insert the wedge connected with the magnets of a set, in the jack leading to the local points of relay in a half Milliken set, and the wedge connected with points, in jack leading to transmitter local of the half set."

(To be continued.)

NEW SOURCE OF WIRE TROUBLE.—Train Dispatcher Wilson, of the Kanawka and Michigan railway, could not raise any operator beyond Buffalo, W. Va., one afternoon lately, and was holding all trains until he could discover the cause. Finally the Buffalo operator was sent out to trace the obstruction. About a mile below Buffalo he came across a man who had thrown another wire over the telegraph wires, thus grounding them. He said he was taking "'lectric treatment for rheumatiz."

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Business Notices.

As there will be a great demand for lodging rooms by visitors to the Pan-American Exposition, at Buffalo, N. Y., which the hotels may be unable to supply, we wish to state that desirable private rooms, with or without board, may be obtained for any period during the fair by addressing P. O. Box 708, that city. Many no doubt will be glad to avail themselves of this opportunity of securing in advance adequate accommodations which later may be difficult to obtain. An advertisement offering to secure the accommodations appears elsewhere in this issue. The gentleman inserting the advertisement is a Buffalo telegrapher of high standing.

The recent fire in the factory of J. H. Bunnell & Co., the well known manufacturers of telegraphic instruments and other electrical appliances, while causing that firm considerable trouble in its ability to readily fill orders, was not altogether an unmixed evil, for "'tis an ill wind," etc. With characteristic energy this enterprising firm has not only promptly fitted up a new and more extensive factory, thus obtaining considerable extra manufacturing space, but has equipped it throughout with the finest of modern machinery, so that their facilities for future work are not only measurably increased, but their ability to turn out even better work than heretofore is made possible. The firm announce that their No. 18 catalogue is ready for delivery and will be cheerfuly mailed to any one upon application. Attention is called to their new advertisement on advertising page three, of this issue.

Recent Telegraph Patents.

A patent for a system of telegraphy has been awarded to F. Bedell, of Ithaca, N. Y.

William A. Hudson, of Washington, D. C., has received a patent for a telegraph sounder.

A patent for a telegraph system has been issued to Ambrose S. Bissell, of New York City. In this system a heating circuit is provided to burn the dots and dashes in the tape.

Donald Murray, of New York, has been granted a patent for improvements in his system of telegraphy, which he has assigned to the Postal Telegraph-Cable Company, New York.

Railroad Telegraph Superintendents.

The Railroad Telegraph Superintendents will meet in annual convention at Buffalo, N. Y., on Wednesday, Thursday and Friday, June 19-20-21.

General Superintendent T. E. Clarke, of the Delaware, Lackawanna and Western Railroad Company, an old telegrapher, has had his private car equipped with a telephone. When the train stops at any of the large stations along the road the operator, by simply "plugging in," places the car in communication with the long distance telephone systems of the road.

You can't afford to be without TELEGRAPH AGE.

Miscellaneous Items.

On Sunday, April 28, the Central Cable office was moved from No. 16 Broad street to No. 46 Broad street, New York.

The Commercial Cable Company's cable steamer Mackay-Bennett was seen in the harbor of New York a few days since on a cable-repairing mission. She proceeded to Halifax, N. S., on April 25.

Miss Jennie V. Fenton, for many years manager of the Western Union Telegraph office at South Bend, Ind., has been relieved by Mr. F. S. Foster, late manager of the Flint, Mich., office.

The Western Union cable boat, "Western Union," on April 18 laid a four-pair telephone cable from Governor's Island to the Barge Office landing at the Battery, New York harbor. The cable was manufactured by W. R. Brixey, and is owned by the Government.

Mr. James B. Dillon, of Louisville, Ky., in renewing his subscription says:

"$1.50 is a small amount of cash
"For the TELEGRAPH AGE, which is first class;
"So enroll me anew, 'tis my eleventh year,
"Hail! TELEGRAPH AGE, you're without a peer."

A testimonial embodying in a preamble and resolutions an expression of affectionate regard for the worth and high character of the late Edwin Holmes, the founder and president for many years of the Holmes Electric Protective Company, of New York, were lately adopted by the officers of that company.

The New York Stock Exchange removed to its temporary quarters in the Produce Exchange Building on April 27. All the telegraph and cable companies had to establish quarters in spaces allotted to these various interests. The Stock Exchange has a telegraph plant of its own, which had to be reconstructed, and which was successfully accomplished under the supervision of Mr. R. L. Bamford, superintendent of telegraph. The Western Union Telegraph Company, The Postal Telegraph-Cable Company, The Commercial Cable Company, The Anglo-American Telegraph Company and The French Cable Company have comfortable quarters. These quarters are only temporary, however, and will be vacated within a year, when it is expected the new Stock Exchange structure will be completed.

Telegraphers Elect Officers.

The Telegraphers' Benevolent Association of the United Railroads of New Jersey and the West Jersey Railroad at their twenty-first annual meeting, held recently, elected the following officers: William Ettenger, president; William H. Wilmot, vice-president; William H. Clarke, secretary and treasurer; R. M. Patterson, trustee.

The first annual ball of the Greenpoint (Brooklyn, N. Y.) division of the Order of Railroad Telegraphers, given on Tuesday evening, April 16, was numerously attended and proved to be a very enjoyable affair.

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Resignations and Appointments.

Mr. George L. Rawden has been appointed assistant night chief of the Postal Telegraph-Cable Company's office at Cleveland, O., vice F. E. Rudenauer, resigned.

Mr. H. S. Masters, who has been manager of the Livingston, Mont., Western Union office for the past seven years, has resigned to accept the managership of the Postal Telegraph-Cable Company's office at Helena, Mont.

Mr. R. H. Miller, who has been an operator at the Cotton Exchange office of the Postal Telegraph Company, Savannah, Ga., for the past eight years, has resigned to accept a position with the Nickel Plate Railroad at Cleveland, O., his former home.

Mr. Walter W. Browne has been transferred from the position of manager of the Western Union Telegraph Company at Hamilton, Ohio, to the managership of the same interests at Dayton, Ohio. His successor at Hamilton is Mr. E. D. Keyes, late manager of the Xenia office.

Mr. F. E. Rudenauer has resigned his position as assistant night chief of the Postal Telegraph-Cable Company office, Cleveland, O., to accept a position as chief operator for Lamprecht Bros. & Co., bankers of that city. The telegraph force at the Messrs. Lamprechts' office consists of Mr. Rudenauer, T. J. Duey, E. C. Monroe and C. C. Daugherty.

New York Visitors.

Mr. J. W. Kates, general superintendent Postal Telegraph-Cable Company, Richmond, Va.

Mr. C. A. Darlton, superintendent of telegraph of the Southern Railway Company, Washington, D. C.

Mr. W. S. Logue, of Chicago, general sales agent of the Edison Phonoplex Company, of New York.

Mr. W. J. Fraser, superintendent Direct United States Cable Company, of Boston, Mass., and Rye Beach, N. H.

Col. R. C. Clowry, vice-president and general manager of the Western Union Telegraph Company, Chicago, Ill., accompanied by his secretary, Mr. F. J. Sherrer.

Mr. S. A. Duncan, assistant general superintendent of the Postal Telegraph-Cable Company, Atlanta, Ga., who was on his way home from a trip to Jamaica, West Indies.

The Magnetic Club Dinner.

The dinner of the Magnetic Club given at the St. Denis Hotel, New York, on the evening of Thursday, April 25, brought together many well known members of the telegraph fraternity notwithstanding the unfavorable weather, and was a thoroughly enjoyable affair. The tables presented an attractive appearance when the seventy-three members and guests sat down, and a general spirit of good cheer prevailed, for it was essentially a gathering of old friends.

After coffee was served, President Francis W. Jones announced that no list of speakers had been prepared, but that any short impromptu speeches would be gladly listened to. Interspersed with a fine musical, vocal and instrumental, and monologue entertainment furnished by the entertainment committee, the meeting was addressed by Col. A. B. de Frece, Chas. P. Bruch, C. A. Darlton, L. B. Foley, M. J. O'Leary, W. C. Burton and others, and a very enjoyable and pleasant evening was spent until the call of Auld Lang Syne by the president.

Among those present were: C. A. Darlton, Washington, D. C.; W. S. Logue, Chicago, Ill.; A. B. Joslyn, H. S. Garwood, W. B. Van Size, Donald Murray, H. W. Sauer, Col. A. B. de Frece, J. Costelloe, J. Mackenzie, J. S. Bennett, W. Conover, W. S. Hallet, Dr. L. R. Hallock, F. Pierce, C. F. Pierce, P. Daniels, J. F. Ahearn, W. J. Carroll, C. Shirley, J. F. Skirrow, E. S. Butterfield, F. W. Jones, C. R. Mears, J. W. Connolly, D. J. Ludwig, J. J. Ganter, W. Heelan, J. J. Moore, W. J. Austin, George H. Usher, A. H. Brown, D. J. Brinsley, W. J. Mundell, M. J. O'Leary, H. G. Pierson, H. Onslow, H. R. Teepe, R. J. Marrin, Daniel Shaugnessy, T. Brennan, William Larkin, J. McParlan, J. H. Robinson, L. B. Foley, George E. Harding, M. H. Kerner, E. G. Willyoung, E. B. Baker, New Haven, Conn.; M. R. Durham, John C. Crabb, George A. French, J. B. Sabine, W. H. Baker, Thomas A. Plunkett, W. H. McCormack, M. R. Cockey, C. P. Bruch, R. J. Murphy, G. F. Fagan, J. F. Shorey, A. P. Eckert, George F. Porter, A. M. Bartow, T. A. Brooks, R. Fagan, F. D. Murphy and J. H. Brown.

Cost of Maintenance of the British Telegraphs.

A well known Englishman now visiting in America, recently expressed himself very forcibly concerning the British Postal Telegraph service, the excellencies and success of which is sometimes held up in this country for an example. He said:

"Its success from a financial and remunerative standpoint will be better appreciated by the American public when it is digested with the cold fact that our system is operated at a loss approximating £550,000, or about $2,750,000, per annum, with no signs of decrease, but evidences of increase, and that the government has lost over £7,500,000, or about $37,500,000, in the operation of the system. If the British government can lose this large maximum sum in a small, compact territory, thickly populated, what the United States government would lose would be a matter of interesting conjecture. Personally, I think centralization of power in the government by the 'control' of everything is bad, and would appear to be against what Americans define as their 'institutions.'"

RACE TRACK WAR.—It has been publicly announced that a war will at once be begun by the three racing associations in New York against the pool rooms. They will prevent the result of races being transmitted by telegraph, and thus endeavor to close all of the pool rooms and so force the betting public to visit the track if it wishes to make wagers on the race. This war promises to be a bitter one.

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Correspondence.

ONLY MORSE CHARACTERS SHOULD BE SENT.

Editor TELEGRAPH AGE:

Referring to the article on "6 Pik," in your issue of the 1st of February last, reminds me of working with Chicago one night not long since. The operator at the Chicago end had all kinds of combinations, but the letter "P" and the figures "8," "4" and "6" especially were always followed with a string of unnecessary dots numbering anywhere between 8 to 15. At the rate he was sending it certainly made things uncomfortable, and even tended to make me nervous. In transmitting a group of figures, namely "51897," it reached me as "510697," and when I repeated back the latter group he did not even detect the error, which proves beyond a doubt that an operator who is unconscious of errors in his own transmission, cannot have a safe ear for transmission.

The habit is becoming a regular nuisance, especially on the main wires, where the receiver is worried from day to day over these combinations, which must be a great strain upon his mental faculties. The only suggestive remedy would be for all the chiefs to place a notice on each table, informing the operators that only "Morse" characters are to be transmitted, etc. I think this would have the desired effect. Yours truly, Y. Z.

Montreal, Que., April 20, 1901.

A Hawaiian Cable Romance.

Cæsar Celso Moreno, for years a familiar character in Washington, has just died there from a stroke of paralysis. Moreno had a picturesque and adventurous career, says the Electrical World and Engineer. He was a native of Italy, saw service in the Crimean War, and while in Sumatra was instrumental in a movement for inciting the natives to revolt gainst Holland. Later he was sent to Tonquin by the French Government in some official capacity, and thence drifted to China, where he organized the first steamship company under the Chinese flag. Shortly after the Civil War he landed at San Francisco and was successful in securing the enactment of the Moreno laws for the protection of coast fisheries. In 1872 he organized a transpacific cable company, in which Leland Stanford was interested, and finally a charter was obtained from Congress for constructing a cable estimated to cost $10,000,000.

Shortly thereafter Moreno again went to the Orient and subsequently to the Sandwich Islands, where he gained the confidence of King Kalakaua. The latter, angered at the refusals of the Cabinet to approve a loan of $1,000,000 by the Hawaiian Government for the building of the proposed cable, dismissed the members and selected four new councillors, Moreno being designated as Prime Minister. Moreno carried things with a high hand, and after five days of power was forced to give up the position. He was still a favorite with the King, however, and the latter secretly commissioned him as Minister to the United States and every court in Europe, but these commissions were soon revoked.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; price, $1, reduced from $1.50.

"AMERICAN TELEGRAPHY," by William Maver, Jr., enlarged and improved; 600 pages; 475 illustrations; clear, lucid and comprehensive in its treatment of the subject, the ranking work of of its kind, and of high practical value to every telegrapher; bound in cloth; price, $3.50.

"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume, of which but a few copies of the first edition now remain, presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; price, $5.

"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones, 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

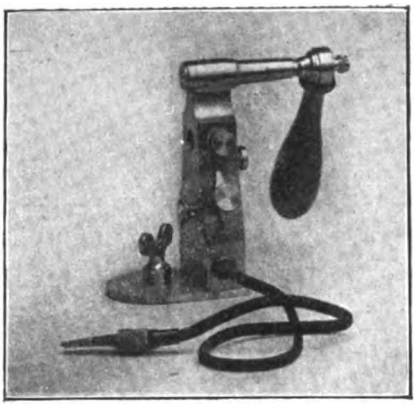
T. M. B. ASSOCIATION.—Assessment No. 378 has been levied to meet the claims arising from the deaths of W. B. Blinn, at Savannah, Ga.; George W. Alley, at Greensboro, N. C.; Dean C. Clapp, at Aurora, Ind.; John Morgan, at Albany, N. Y.; Joseph H. Walton, at Boston, Mass.; Emil M. Shape, at Milwaukeee, Wis.

A subscription to TELEGRAPH AGE is one of the best investments a progressive telegrapher can make; it keeps him thoroughly posted.

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Twentieth Century Telegraph Key.

This is an instrument which signalizes a radical departure from present methods. Writers' cramp and telegraphers' paralysis are serious afflictions to

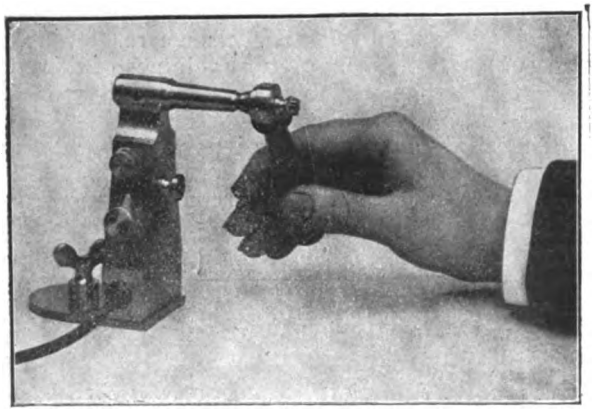


THE 20TH CENTURY TELEGRAPH KEY.

an extent that the telegraph operators of this country know too well. The introduction of the typewriter into telegraph service and its marvelous results are so well known to telegraphers that comment is unnecessary. Suffice it to say that every telegrapher knows that writer's cramp no longer has any terrors for the operator, and that the receiving operator who uses a typewriter is no longer at the mercy of the transmitting operator.

But what about telegraphers' paralysis? Is there an operator in this broad land who can not number among his acquaintances many who have "lost their grip"—whose transmission of Morse characters is such that it is torture to copy from them, and to whom transmission is agony. Go into any large telegraph office and note the effort of those afflicted to transmit with various parts of the hand or wrist, or with the left hand. No argument is necessary to show the enormous prevalance of this affliction.

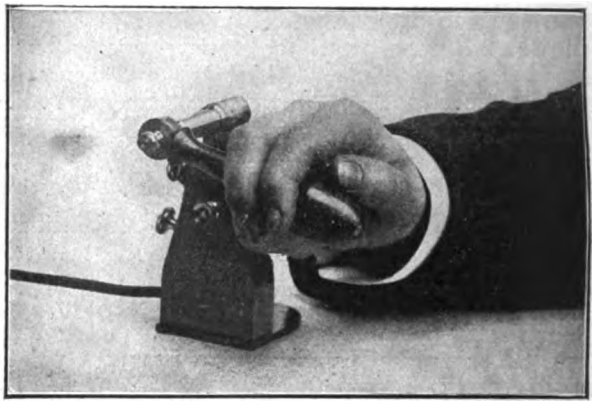
Even the application forms of the telegraph com-



THE FAVORITE POSITION.

panies to-day contain the query, "Are you afflicted with telegraphers' paralysis?" and those so afflicted are seriously handicapped, in some places entirely disbarred from employment. Nor is any operator "immune" from this dread visitor. The brilliant operator of to-day, with a wonderful record for transmission, is the applicant for a berth on "receiving sides only" to-morrow. Why all this? What causes this paralysis that destroys an operator's usefulness when he should be at his best?

Let us go back a few years. With the invention of telegraphy a "key" was provided, its purpose being to open and close a circuit. Now, you can do that with the two ends of the wire of the circuit, and the key of common use to-day is practically those two ends with a rubber knob attached to one of them so that the opening and closing may be done without touching the wire. It will be noticed that this knob is made in the shape of a flat topped button, as though the intention was to tap it with one finger; in fact this was the manner in which its use was originally intended. But modern speed makes it necessary to grasp this knob in order to transmit, thus necessitating a cramped position of the fingers. Numerous devices of rubber covers and the like to make this grasp easier have failed to afford relief. Observe the effect upon the nerves and muscles when this key is operated. A little contraction of the muscles



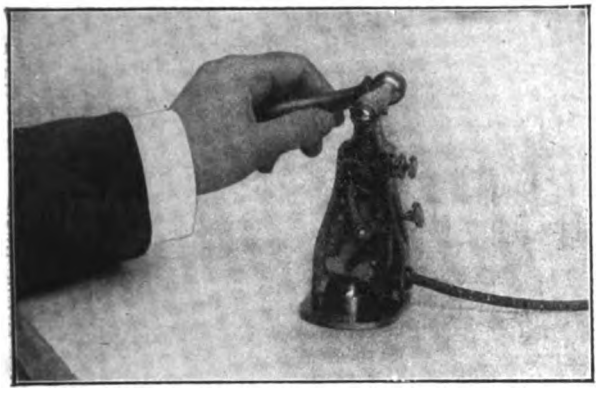
POSITION FOR SITTING UPRIGHT IN CHAIR.

of the wrist downward, with a quick return, makes a dot or dash, requiring two muscular contractions to a signal. How simple, you say, but let us figure a little. The Morse signals average three to the letter, that is six muscular contractions per letter, which at five letters to the word makes thirty contractions per word, and at twenty-five words per minute produces a total of seven hundred and fifty muscular contractions per minute. With half of a nine hour day put in on the sending side this means 202,500 of these nervous pulsations per day of ordinary work, all upon one set of nerves and muscles in the wrist. Is it any wonder that they become paralyzed? The marvel is that they stand it as long as they do without breaking down. It is not strange in view of these facts that many press operators, whose work means twice or thrice the amount quoted above, place two or more keys in various positions on their tables in the endeavor to shift the strain even in such a slight degree as this affords.

The instrument here introduced is the result of the study of years of the conditions leading up to this paralysis, and is offered as a relief to oper-

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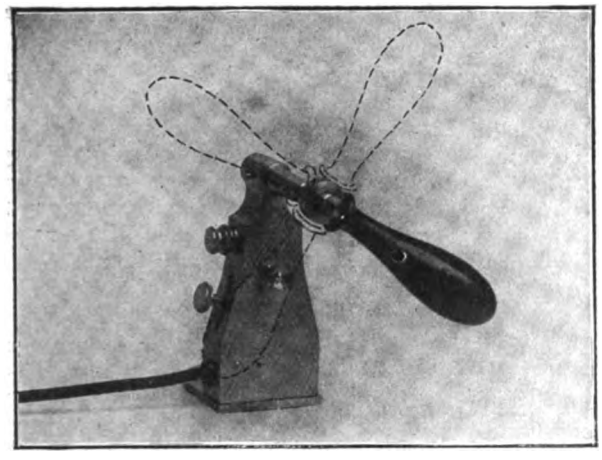
ators who are already victims, and as a preventative to those who are not. Its construction is, as may be readily seen, a radical departure from ordinary keys, and it will be noticed that there is no knob that the tired fingers must grasp. A handle that may be grasped by the whole hand or operated by the touch of any finger or part of the hand,



KEY IN POSITION FOR LEFT-HAND TRANSMISSION.

or even arm, is provided. It is unnecessary to retain a firm hold upon this handle, and the fingers may be shifted as desired during transmission, thus affording great relief. The handle itself may be turned completely around at will, while transmitting, so that any desired position may be secured instantly. Whenever the slightest strain is felt, a change can therefore be made, affording instant relief.

The key as a whole can be completely turned around upon its base, affording another entire set of changes of position, in such manner that it may be operated by either hand, or permitting a



SHOWING RADIUS OF HANDLE FOR VARIOUS POSITIONS.

change of the position of the operator in his seat. Transmission may also be conveniently effected while standing, by an upward twist of the handle, and those who use a key while standing will find this instrument a revelation in comfort.

It will be noticed that this key brings into play various sets of nerves and muscles, and in many of its positions the operator will find, at first use, a muscular feeling akin to that when first learning to send, or when learning to ride a bicycle, caused by the use of muscles that he "never knew he had." This, of course, quickly wears off as these long dormant muscles become accustomed to use.

The key is also provided with a flexible spring point to prevent the jar that a solid point gives. The term "pounding brass" is no misnomer with the ordinary key. As an operator who is using the new key expresses it: "The action of this key as compared with the ordinary key, feels like the difference between the touch of velvet and sandpaper." A result of this is that a naturally light sender transmits solid signals despite himself with this key. It is confidently predicted by many that the New Century Key will work a revolution in telegraphy as great as that caused by the introduction of the typewriter.

This key is being made and sold by Foote, Pierson & Co., the well known manufacturers of telegraph apparatus, at 82-84 Fulton Street, New York City.

The Manila Cable.

The Eastern Extension Company, which controls the cable running from Hong Kong, China, to Manila, P. I., some time ago protested against the laying of United States cables in the Philippine Islands to connect with Manila, as under the Spanish régime the privilege was granted to the company of exclusive rights in cable construction. The permission was accompanied by but one reservation, which stated that the Spanish Government had the right to lay cables for state purposes.

The United States cable-ship Burnside is to continue laying cables for the War Department, the United States courts having decided that the cable in process of construction is for state purposes, and that the Spanish concession is not violated thereby. The grant made to the cable company was put into effect immediately prior to the Spanish-American war, and extends over a period of 40 years.

Appointments in United States Signal Corps.

The following appointments have been made in the Signal Corps, regular army, subject to a physical examination: To be captains, Edward B. Ives, Eugene O. Frecht, Gustav W. S. Stevens, Daniel J. Carr, Leonard D. Wildman, Charles McK. Saltzman, Otto A. Nesmith, Carl F. Hartmann, Benjamin F. Montgomery, Charles B. Hapburn. To be first lieutenants, Frank E. Lyman, Jr., George C. Burnell, Henry W. Stamford, Basil O. Lenoir, Charles S. Wallace, William Mitchell, Walter L. Clark, George S. Gibbs, Richard O. Rikard, Henry S. Hathaway, Alfred T. Clifton, Charles B. Rogan, Charles de F. Chandler, Mack K. Cunningham.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.

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"Farmer" Lawton Tells How Newspaper Men Get There.

"How do newspaper correspondents manage so well to gather and compile the news when sent out in the rural districts?" was asked of George E. Lawton, night manager of the Western Union office in Denver, Col., presumably ever since Profesor Morse sprung his magnetic telegraph upon the public. "Old Farmer Lawton," as he is generally known, was the first agent of The Associated Press in Colorado away back when Mr. Simonton managed that concern. This naturally brought him in contact with the newspaper men. He can tell some very amusing anecdotes.

When the question was put to him the "old farmer" leaned back in his chair, placing one of his No. 11's against the sounder on a St. Louis wire, while with the other foot he shut off the disturbing sounder of a Chicago quadruplex. Then, in his original way, he said:

"Let's commence with recent events and drift back into the long forgotten past as we proceed. Take the burning of the negro over in the eastern part of the State a few months ago. That's where the correspondents distinguished themselves and the case proves that good newspaper men are not made in schools, but are simply born that way.

"That improvised telegraph office that Colonel Brooks opened out there on the prairie for the convenience of the press by running a few wires down to the ground from a neighboring pole lacked many conveniences usually found even in a country depot. However, the dozen or fifteen correspondents appeared right at home, although, I must admit, it was amusing to watch them sitting around on the ground with nothing but a railroad tie for a writing desk. How many business men, do you think, could have watched that poor creature burned to death inch by inch and then sit down on the ground and turn out copy that an operator could send from with no other light than a fire that was fast consuming that miserable being? Very few, I think, if any.

"Because Dave Day, of the 'Solid Muldoon' fame, would not drink, smoke or play poker, 'Gene Field and Bill Nye went at him from both sides. At first Dave amused himself when the mails brought the Denver Tribune and Laramie Boomerang to his office by pinning them on the big pine trees in his back yard and shooting them full of holes with his six-shooter, but finally Dave saw it was costing him more for powder and balls than the expense of getting out his own paper, and he was getting hot under the collar even in a nice cool place like Ouray. So he went after them through his 'Solid Muldoon' and when the battle ended several months later, we all thought Dave had a little the best of it.

"With Bill Nye it all depended upon the position of his feet and not his body. Bill, you know, had very large feet. He would saunter into his office, turn around a few times, like a house dog trying to find a soft place on the floor. Then shoving his feet with their corn attachments into a convenient corner or under a table, Bill's brain and pen were ready for business.

"It was certainly very amusing to watch the positions taken by Eugene Field and O. H. Rothacker when they were 'serving time' on the old Denver Tribune, back in 1882. 'Gene would take off everything but his shirt and trousers. Throwing his suspenders over his shoulders, he would drop his bony frame into a very low chair. Then he would bring both his feet up on the desk on about a level with his head, and with his pad in his lap he was ready to write and entertain his friends. Rothacker would sit in the next room with his overcoat on, using a very high chair with his feet tangled up in its rounds or sticking out behind it like a dying buffalo. He would lean forward until his long black hair and sometimes his nose would blot the 25 or 30 words that he usually put on a sheet.

"Twenty years have changed all this, their positions are not now so different, poor fellows. They could not always stand that continual strain and have merely laid down their pens and are taking that long needed rest, but their words of prose, poetry and wit have left a monument to their names here on earth.

"Langdon Smith, now with the New York Journal, was once 'only' an operator, but a mighty good one was he and worked for us here in Denver twenty-five years ago. Langdon would no doubt have been pounding brass yet if a queer circumstance had not made a newspaper man of him. It came about in this way:

"He was taking night report at Fort Scott, Kan., when a horse thief was strung up in a neighboring town. Such things were so common in that section then that the item was really worthless unless a picture of the 'lynchee' could be produced. The artist on the paper where Smith was nodding away copying a report was equal to the emergency and quietly took a sketch of Langdon. Strange as it may seem, this picture did the work. It was noticed by a man living in Illinois and recognized as his son to whom the body was shipped. This was Langdon's first hit. But after coming to Denver he quit posing for dead horse thieves and wrote some very pretty poetry and reported prize fights for some of the Denver papers, and I have watched with great pride how rapidly he has climbed the golden ladder to fame.

Telegraph Suit Settled Out of Court.

The telegraph suit, the action of Morrow and Clarke, of Boston, brought at Toronto, Ont., to annul the lease by which the Great Northwestern company has for seventeen years controlled and operated the lines of the Montreal Telegraph Company, has been settled out of court in favor of the defendants.

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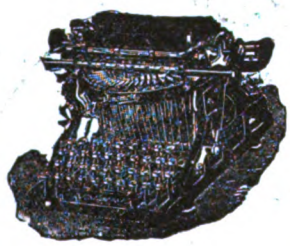
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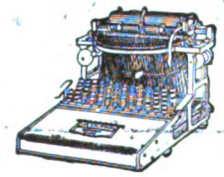


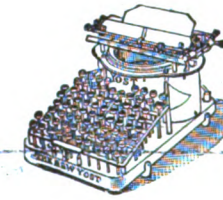
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NEW YORK, May 1, 1901.

Readiness for Promotion.

The need of special preparation in order to fit an individual to acceptably fill any position in life was never more urgent than at the present time. The close competition and the economic necessities of commercial conditions compel it. There never was a time when practical intelligence counted for so much as at the threshold of this twentieth century. These stern facts, so obviously true, apply with equal force to the telegrapher as to others in different walks of life. There is no lessening of demand, for the services of competent men are everywhere required, and opportunities for business preferment are not less than in years past. It may be that the standard of excellence is rising; it is, but we live in these latter days, and must therefore measure up to and accept the conditions of our environment. Hence it is that we are called upon to adjust ourselves to newer methods and changed surroundings. And he is a wise man who cheerfully accepts the inevitable and resolutely essays to conquer for himself success in life from the starting point of to-day, not of yesterday.

But we do not propose to write a homily on this topic. The fundamental facts briefly alluded to should be clearly apparent to all who will give the subject even but cursory attention.

A point we wish to illustrate is this: Many there are who, forgetful of, or oblivious to, the requirements governing merited promotion, neglect to fit themselves for advancement, content to drift, yet vaguely hoping that a higher position will by some unexplained means luckily fall to their lot; that when such promotion is once assured then will be the time to take up the study necessary to qualify them to hold the place. Promotions due to luck rarely occur, and the utter fallacy of such shallow reasoning should be manifest even to the dullest and most careless mind.

Then, again, there are others who devote themselves to study and carefully prepare for promotion, and when in their judgment they are competent to fill a higher place, and it is not speedily accorded to them, and no vacancy apparently is in sight, are oftentimes vexed and despondent and ready to decry the effort as a wasted energy. An operator recently wrote us in a very discordant tone to this effect, yet shortly afterwards he found his reward in receiving an appointment to a responsible position with a telephone company, an interest analagous to the telegraph, by the way, and which is taking into its employ a large number of the better informed class of telegraphers. It was not because the telegraph company failed to appreciate the services of this individual that the telephone company was prompted to step in and secure him, but because it was known that he was a student and possessed merit as an electrician.

Whether promotion in recognition of abilities comes early or late, one thing is certain, no choice of an individual will be made from among the ranks of those who are not qualified and ready. This is an eternal truth and nothing can change it. No time is wasted or lost that is spent in acquiring a more profound depth and range of technical knowledge.

To "Revolutionize" Telegraphy.

Mr. Frank D. Pearne, who was the superintendent of construction of one of the telephone companies of Chicago, is the inventor of a printing telegraph system of the usual sort frequently heralded, to "revolutionize" telegraphy. Our readers are quite familiar with the claims of this class of inventors, and we could pass over Mr. Pearne's case with but a pitying glance were it not for the fact that he had caused to be inserted in the Chicago Tribune of a recent date a statement reflecting upon the telegraph fraternity which has no foundation whatever in fact, and which is but the hallucination of an at least peculiar mind. His words, as quoted, are as follows:

"I expect to perfect my machine and make it possible to use it in connection with the Mergenthaler typesetting machine. In a short time it will be possible to send a message from New York to Chicago and put it into type without the assistance of an operator at the receiving end or a typesetter. My invention will revolutionize the transmission of news.

"Telegraph operators have threatened to destroy my models and say that I will drive hundreds of operators out of employment, but I believe the invention will benefit operators. In will increase the speed of messages and newspapers will be able to handle more copy than under the old system."

The average telegraph operator looks upon inventions of the Pearne stripe with perfect indifference, knowing that of the thousands of the new systems devised to revolutionize telegraphy brought out during the past twenty-five years, not one of them has yet been found of commercial value. The Chicago fraternity is too busy minding its own business to waste a moment's time in

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destroying models of a system, the intricacies or the possibilities of which possess no terrors for them or cause undue apprehension of coming disaster. No, Mr. Pearne, you will meet with no opposition from telegraph operators. According to your own description of your device, any telegrapher of intelligence could quickly convince you that your invention contains but little real merit, and that little is due mainly to the brain work of another gentleman. You have simply reinvented ideas that properly belong to another, and have clothed them in an extraordinarily clumsy manner.

Bogardus Heard From Once More.

"Bogy" (Henry A. Bogardus) is on his travels once again, and is headed eastward, New York being his destination. But the span is a wide one between New York and Cheyenne, the point from which he dates a letter on April 13, hence the time of his arrival in this city cannot be confidently stated. Here is the letter:

"Somebody told me they had seen in TELEGRAPH AGE something of my being on a ranch. I did not suppose you would tell all the United States. Now I tell you here, personally, that the three months I was there (as I wrote you) I prepared enough copy to keep you busy for at least six months. I had plenty of time and was anxious. I sent to Colorado Springs to get the paper and every spare moment I had I applied to the continuation of the story.

"One Sunday morning I was sitting on top of the cellar in my shirt sleeves talking with my friend and reading headings of recent papers, when all of a sudden up came one of those things they call a cyclone. I dove down into the cellar and was none too soon. My friend started for the house. The cellar door blew shut and there I was. I could hear the wild roar of the elements, but could not open the door.

"In the course of what I should judge to be thirty or forty minutes, everything seemed quiet and I touched the door and it opened as easily as at any other time. I looked out and, great goodness! I never, in all my career, saw such devastation. Forty tons of hay had been blown away, together with two horses and a cow; the kitchen of the house was gone; the house itself did not have a shingle on the roof; the stone built chicken house was distributed around, and out of seventy-three chickens and roosters we found but one rooster and two little chicks.

"With the rest of destruction went my three-months' efforts to write you something that I thought might be interesting, or entertaining, to your many readers.

"Thus it goes. Think, for a moment! Had I been on top of the ground, I would have been distributed around the United States in such small particles that you couldn't find me with Lord Ross' telescope, or a search warrant. All of which goes to prove that I am impervious to death. I will try it over again. If you choose to publish the facts of the case you may do so. Some day I will anchor."

Western Union Manager at Houghton, Mich.

Franklin C. Miller, manager of the Western Union telegraph office at Houghton, Mich., was born in Albion, that state, March 19, 1855. In 1870 he began his telegraphic career, entering the service of the Michigan Central Railroad as night operator, in his native village, remaining there until April, 1871. During the next four years he found employment respectively with the Chicago and Northwestern, Burlington, Cedar Rapids and Northern, and Chicago, Burlington and Quincy railroads at various points in Iowa. In the spring of 1875 he accepted the management of the Cedar Rapids, Iowa, office, a position he held until 1877, when he once again re-entered the railroad service as agent of the Union Pacific Railway at Hastings, Neb., and later as a train dispatcher at St. Joseph, Mo. The Lead-



MR. FRANKLIN C. MILLER,
Manager Western Union Telegraph Office, Houghton, Mich.

ville excitement in 1879 lured him to the Rocky Mountain region. In this section he worked as an operator for the Western Union, later becoming a train dispatcher for the Kansas Pacific Railroad at Denver, and for the Rio Grande Railroad at Buena Vista. The first railroad train into Leadville was run under his orders. The high altitude of the mountains of this section not being to his liking he resigned, and accepted a positon with the Grand Trunk Railway as operator for the general superintendent, W. H. Pettibone. Continuing in this situation until the spring of 1881, he resigned to enter the service of the Western Union Telegraph Company in Chicago, and remained in their employ in that city and at various western and southern points until 1886, when he again returned to the railroad service as dispatcher with the International and Great Northern Railroad at Houston, Tex. Tir-

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ing of the South he went back again to the commercial service, filling positions at Omaha, Ogden, San Francisco, Portland and Tacoma, until 1890, when he accepted the management of the Huron, S. Dakota, Western Union office, where his parents then resided. While there he married Miss Emma Fitch, who was formerly manager at Redfield, S. Dakota, and at Appleton, Wis. In the spring of 1891 he accepted the position of manager of the Postal Telegraph-Cable Co. at Grand Rapids, Mich. Here he remained until May, 1894, when he became an operator in the Cairo, Ill., office. From there he was transferred to a similar position at Cedar Rapids, Ia., where he rmained until the fall of 1899, when he again re-entered the service of the Postal Telegraph-Cable Co. as their manager at Lincoln, Neb., resigning six months later to accept the management of the Western Union Company's interests in the copper district at Houghton, Mich., where he is stationed at this time.

An Important Decision.

The case of the Western Union Telegraph Company against The Call Publishing Company, of Lincoln, Neb., was decided, April 15, in favor of the newspaper by the United States Supreme Court, at Washington, D. C., Justice Brewer delivering the opinion. The Call is a Lincoln newspaper, and the suit was based on the allegation that the telegraph company had discriminated against it in the matter of tolls in favor of The Lincoln Journal. Judge Brewer's opinion affirmed the opinion of the Nebraska Supreme Court. It was alleged on behalf of The Call that while that paper was taxed at the rate of $5 on one hundred words, The Journal was required to pay only $1.50 on one hundred words. The telegraph company contended that its services to The Call company were a matter of interstate commerce, subject to regulation only by Congress, and not by State law or by common law, and that as Congress had taken no action the telegraph company could not be restrained. In handing down the opinion of the Court Justice Brewer asked:

"Can it be that the great multitude of interstate commercial transactions are freed from the burdens created by the common law, as so defined, and are subject to no rule except that to be found in the statutes of Congress? We are clearly of opinion that this cannot be so, and that the principles of the common law are operative upon all interstate commercial transactions except so far as they are modified by Congressional enactment."

Marconi's wireless telegraph company is erecting an etheric station on the mainland of England nearest Fastnet Rock. All vessels fitted with a transmitter will be able to report themselves when they are many miles beyond the rock, and thus avoid threading the passage separating it from the mainland.

The Western Union Telegraph Company of Chester, Pa., has moved into new quarters, and Manager W. Vance Compton is correspondingly happy.

The Postal's Manager at Cincinnati.

Mr. C. E. Sawtelle, manager of the Postal Telegraph-Cable Company, Cincinnati, O., is of New England origin, having been born in Maine in 1858. While yet a boy and attending school in his native place, he learned telegraphy. At the age of nineteen he obtained his first position as an operator. This was at the Philadelphia office of the Philadelphia, Wilmington and Baltimore Railroad Company. Here he remained for seven years, after which he had two years' service with the Western Union Telegraph Company in the same city. Then it was that he went west, to Ogden, Utah, where he again found employment with the Western Union for several years. By this time, having acquired some capital, he decided to abandon telegraphy and enter into the field of mercantile business,



MR. C. E. SAWTELLE,
Manager Postal Telegraph-Cable Office, Cincinnati, Ohio.

which he did in Anaconda, Mont. In this venture he was successful. While thus engaged, silver mining, then in its zenith, attracted his attention, and for a while he became interested therein. Later, however, Mr. Sawtelle returned to telegraphy, this time finding employment with the Western Union Company at Chicago. With this company he continued for but a year, when he entered the service of the Postal Telegraph-Cable Company in that city as manager of a branch office. This was in 1896. Later he was promoted to be city solicitor, afterwards being placed in charge of the wholesale district. His success in that field was marked, and when the position of manager at Cincinnati became vacant Mr. Sawtelle was selected for that post.

The articles, "Some Points on Electricity," published regularly in TELEGRAPH AGE, are filled with practical information for the up-to-date operator. Send for a sample copy.

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Seeking Gutta-Percha.

A serious element in projects for the construction of submarine cables is the increasing scarcity of gutta-percha and consequently its increasing cost, for gutta-percha is an indispensable cable insulator. Between 1864 and 1890 the amount of gutta-percha exported from the restricted region where it is produced increased from 1,800 to 45,000 tons. Even as late as 1882 only 3,800 tons was exported, so that the actual increase in the nine years was 41,200 tons.

But this increase in production by no means kept pace with the increase in demand, owing to the enormous extension of cable laying in the 80s. So intimately allied are electric cable extension and gutta-percha production that in any year or any given period of years it is quite possible to measure the one by the other. But comparatively speaking cable laying in all parts of the world has so outstripped gutta-percha production that there has been a very decided increase in the cost of gutta-percha in the market. Between 1876 and 1882 the price of gutta-percha doubled. Between 1889 and 1898 it increased by one-third.

"The production of gutta percha," said George Clapperton, traffic manager of the Commercial Cable Company, "is a vital factor in making submarine cables and I have heard the comparative scarcity of gutta-percha discussed as a serious element in the cable laying of the future. But the promising view of the case is that really there is not a vast deal of deep sea cable laying in the world which remains to be done.

"The last link in the second line from England to South Africa has just been completed and the German cable to this country has been laid. The two great lines in contemplation are the American cable to Hawaii and the Philippines, and the British line from British Columbia—about 16,000 miles. Then there is another line in consideration from somewhere on the eastern coast of South Africa to Australia, about 6,000 or 7,000 miles at a rough estimate, and some 1,500 miles more in Northern Europe, making a total of from 23,000 to 25,000 miles. When these are completed the world will be pretty well immeshed with cables and it would seem that the construction would be comparatively limited for a time at least thereafter.

"Now, of course, the construction of the 16,000 miles in the Pacific alone will require a vast deal of gutta-percha. Yet I imagine the cable manufacturers know where they are going to get it, for I understand that they are already prepared to bid on the contracts. This, I suppose, would hardly be the case unless they had the gutta-percha in sight.

"There is absolutely no other substance known that will take the place of gutta-percha as a shield for the copper wire case of an electric cable. Search has been made and is still being made for something that will do as well, but it has not yet been successful. Experiments have been made with other substances, but they all failed. So the deep sea cable seems practically to be dependent upon gutta-percha.

"It is a perfect insulator and it has also the property not only of not deteriorating by submersion in sea water, but of actually improving the longer it is submerged. Gutta-percha that has been at the bottom of the sea for years is better than when it was first laid down. It retains its remarkable plasticity and remains still as perfect in regard to its insulating qualities."

Covering the copper core of an electric cable with gutta-percha is one of the most difficult and delicate processes in cable manufacture. The slightest imperfection in the covering or a pore the fraction of a hair's breadth in size means sooner or later a broken communication involving an expensive voyage of the repair ship.

The gutta-percha, which must be of the finest quality, is laid on over the wire to a thickness of about the diameter of the wire itself. Over this is laid a coating of a paler and cheaper quality of gutta-percha, and then come the steel wires to give tensile strength. Over the whole is wrapped jute cord coated with tar."

"There is on board every cable repair ship," said another man connected with the Commercial Cable Company, "one person who, although he is a mechanic having an important part of the cable splicing to perform, is in about the position of a first cabin passenger. He is called the 'gentleman of the ship.' Until the time comes for him to get in his fine work he does no labor whatever, because it is absolutely necessary that he shall keep his hands soft and with all their delicacy of touch unimpaired.

"This is the man who lays on the gutta-percha covering over the parts of the cable after they are spliced. It is the most delicate and careful work imaginable. He has to go over the gutta percha again and again, smoothing it down with his fingers and examining it minutely as he works to see if there is the slightest imperfection or the most hair-like porosity. This has to be done with every coating as it is put on until the requisite thickness of gutta-percha is reached.

"A man whose hands were in the least hardened or calloused with rough labor never could do it, so the 'gentleman of the cable repair ship' has nothing to do between cable splicing times save eat and sleep and keep his hands manicured until they are as white and delicate as a fine lady's are supposed to be. It is an easy berth, but like most easy berths it requires a corresponding degree of skill to go with it."

In France of late years there has been a growing anxiety over the increasing scarcity of gutta-percha, for the reason that the French do not consider that cable laying will be at an end by a good deal when the world is girdled round and round about with the cables now in operation or in contemplation. A great deal of ink has been spilled in France of late years to point out the fact that all these cables are English lines touching for the most part on English soil alone. In fact, with the recent completion of the second line from England to South Africa the earth is girdled with cables which touch land nowhere save where the English flag flies.

Several French writers have recently viewed

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with alarm the tremendous advantage this would give Great Britain in a war waged with one of the few nations that are approximately near England in naval strength. It would mean for one thing that whereas England would be able to keep very accurate tab on the movements of her enemy's fleets, the whereabouts of her own would not be an easy matter for her enemy to follow. For that reason these French writers have been urging their Government to wake up and go to cable laying for the benefit of France.

Germany is already aroused to the situation and has stretched a wire, with wide ramifications, to this country. So that instead of cable laying being nearly a completed job, it may very well be that it is a job only just fairly begun.

That being the case and gutta-percha being indispensable to submarine cables, the tree which yields the precious milky gum from which gutta-percha is made has become an object of very great international interest. Commercial concerns as well as governments themselves have in the past few years been giving very close attention to the gutta-percha problem. Tropical forests have been ransacked for the tree or for one so nearly akin to it that a cable-covering product may be had from it, and there are various attempts at creating plantations of the original tree in regions where heretofore it has not grown. The forest ransacking has resulted in failure and the plantations have not yet got beyond the experimental stage.

The area in which the gutta-percha tree thrives is extremely limited. It is confined exclusively to a portion of the Malay archipelago and the Malacca peninsula. Where there is an even temperature of an average of from 80 to 82 degrees Fahrenheit and the soil is favorable the tree grows with great vigor. But with only a slight variation of these conditions and particularly where there are sudden changes of temperature, even if those changes are not extreme, it languishes and dies.

The Philippines touch closely upon the gutta-percha belt, yet the tree does not grow there indigenously and it is at least very probematical whether it can be cultivated there. It will not grow in Cochin China, likewise near the gutta-percha belt, because the average temperature is too low and the changes too sudden.

Gutta-percha trees have been transplanted to a score or more places where they have failed, although the Dutch have succeeded in establishing several plantations in their East Indian possessions which give promise of success. The experiment is by no means complete as yet.

In 1898 the French explorer Raoul collected about fifteen hundred plants gathered at the foot of the trees, where they had sprung up from seeds that had been dropped. These he put out in the conservatories at Marseilles, and after a time one-third of them were taken to the Congo and put out in plantations and another third were distributed among the planters of the West Indies and in French Guiana. In 1897 M. Jacquet, Inspector of Agriculture in Cochin China, carried away 700 plants from Singapore, 100 of which in 1899 were in a fair condition.

It remains for the future to determine what the results in the Congo, the West Indies and in French Guiana will be, although those who have studied the tree and know the very exacting nature of its demands in regard to soil and climate are by no means hopeful.—New York Sun.

The Spirit Telegram.

BY SAIDEE GRAY COX.

"I was holding down a little night office in a 'wooly' town out west," said an old operator, in response to a call for a story, in the club the other evening. It was in the Y. M. C. A. club rooms, and stories told here are supposed to be authentic.

"I was sitting in a little hut made of sun-dried bricks in western Arizona. The population of the town consisted chiefly of miners. As far as I am aware not a woman was in the community. Many of these 'soldiers of fortune' were tough specimens, holding men's lives as lightly as the pagans of old.

"I was getting pretty tired of the place, and was desirous of an order to 'move on,' but none came.

"That day, one of the prospectors who boarded at the Widow Finn's, where I also held out, paying my nice little six dollars a week for the privilege of sitting down to dried peas and soggy potatoes three times daily, came in and wanted me to celebrate with him, as he and his 'pardner,' 'Glowering Ned,' had 'struck it rich' that afternoon in an old abandoned claim, but like Bret Hart's old man Dow, they had made a strike from pure and cussed contrariness.

"I saw 'Glowering Ned' just as I started back to the 'shack,' which the railroad company, in grandiloquent terms, designated office.

"He looked about as cheerful as a second hand string of coffins, and I wondered at the coquettish goddess who played such strange tricks with man. Here was I, cheerful and needy, and here was 'Glowering Ned,' gloomy, black and discontented looking. Handsome enough fellow he was too, if he had not such a countenance of concentrated gloom. He passed me with a curt nod of the head, and I decided at once that socialists had some reason to howl for a division of wealth, if the average millionaire was as savagely unsocial as Edward Noble. Sure enough, he had a name, although I had never heard him called other than 'Glowering Ned.'

"I passed him and went into my hut to wait for messages that so rarely came. The hot hours of the long night dragged slowly away. I had thrown myself out at full length on a kind of bench or counter, along one side of the room, and had been asleep I don't know how long, when I heard a call at the keys to receive a rush message. I took it unconscious of what I was doing, for I was not yet thoroughly awake, but when I glanced at the flimsy yellow slip of paper I found these words:

"'Edward Noble, San Jacinto, Arizona. Return at once. All is forgiven. Helen Branscom Noble. 303 West Twenty-second street, New York.'

"'Humph!' I said, 'Noble, my boy, what is this?'

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I hustled over to the boarding house, and pounding on the door, aroused him, and, delivering the message, waited a moment to note the effect. Had he been electrocuted he could not have looked more deathly, but the next moment I was startled by the unearthly change which succeeded his recent pallor. His face seemed transfigured by an inward light. A great joy was in his eyes, his lips smiled expansively. He was not at all offended (as I had expected) at my lingering, but grasping my hand heartily, he said:

" 'Thank you, old man, you have done me a good turn. She is my wife, you know. I did her a most deadly wrong'—and his voice trembled—'another woman, but she is dead. She was killed six months ago by a fall of dirt in a drift where we were excavating. She was here with me before I took Jem Mace in as a partner. She made a good looking boy and was called by the miners 'Tallow-Locks,' from her yellow hair. Poor girl, she is gone. I don't know why I am telling you all this stuff, unless it is that your eyes look kind and sympathetic.' As he talked he was hastily throwing some things into a hand satchel. 'None knew her sex, for she was buried quietly. I alone caring for the remains. I do not know that I ever loved her. Quite unconsciously I compromised her. She came to me in her distress and together we fled to the West. Blind fool that I was, I did not consider the mortification and agony of my wife who was an intensely proud woman. God knows that from the moment I left her I have been most unhappy. How she learned my whereabouts is a mystery to me. Thank God, old man, I can go home to my wife again,' and we went out in time for him to catch the midnight train. 'So,' thought I, 'there is an end to that chapter.'

"Some time the following afternoon, a young fellow, a stranger, came into the office. 'Say,' said he, 'you didn't get a telegram for a fellow named Edward Noble, did you?' I nodded. 'Well, hand it over then, I'm the chap.'

" 'You?' I exclaimed in surprise.

" 'Yes,' he replied, 'I came in on the 6.30 train last evening. I've been having hard luck lately. Left home abruptly, you know, took some of mother's jewelry and a check or two. Have had such deuced bad luck that I recalled my Sunday school training and decided, like that fellow that ate husks with the swine, to return unto my only parent, and trust to her tenderness to forgive my deviltry. I wired her from a little town back here a little way, giving my address as San Jacinto.'

" 'What is her address?' I asked.

" '303 West Twenty-second street, New York.'

"I told him the contents of the telegram which I had given 'Glowering Ned,' and he declared that it was from his mother, Helen Branscomb Noble.

"He immediately wired her for money, and she in return telegraphed him two hundred dollars, and I was obliged to believe that I had sent a poor, unhappy fellow, now made deliriously happy, hundreds of miles across the continent on a fool's errand. It made me quake inwardly to think of what might occur on his return, for, as I have before remarked, they held life lightly in the West at that time. Fortunately I was removed before his return.

"Some five years later I was in Washington, D. C., somewhat improved in fortune, and seeking an interview with a prominent politician. The above episode had entirely gone from my memory, when it was forcibly brought to my mind again by a meeting with an eloquent member of the House of Representatives from one of the middle States. With a hearty slap on the shoulder, he inquired if I remembered him. Upon my reply that I did not recall him, he said:

" 'Old friend, don't you remember San Jacinto and Glowering Ned? Do you know,' he added, 'Helen declares that she did not send that telegram, and indeed she could not have done so, for she was ill with a very high fever at the time. Her physician says that she was continuously, in her delirium, sending me telegrams to return, for she forgave me freely. I think it was a spirit telegram, don't you?' I can't account for it; all I know is that this is a true story."—Lee's Magazine.

Pictures Sent By Wire.

Two bodies of scientific men gathered recently —one in Columbia College, New York, and the other in the Quadrangle Club, in Chicago, to witness the test of an electrical instrument which was to transmit the half-tone picture by telegraph of President Seth Low to the Chicagoians and that of President Harper to the New Yorkers.

The experiment was a complete success at the New York end, and the three thousand people, gathered in the hall on University Heights, watched the image of the features of the president of the Chicago University as it appeared in a fac-simile of the one on the transmitter one thousand miles away.

The Chicago audience, however, according to word received by telegraph, was disappointed. The instrument at that end did not record the impressions clearly, and no picture resulted, excessive induction in the transmitting wires being given as the cause of the failure.

R. H. Palmer, of Cleveland, O., operated the electrical machine transmitting the picture across 1,000 miles of wires.

Mr. Hugh Bonner, late chief of the New York Fire Department, has become associated with the Montauk Multiphase Cable Company, of 100 Broadway, New York. This automatic fire-detecting device, which so unerringly detects the presence of fire, or even of overheated conditions, has always commanded the approval of the ex-chief, and now in his retirement from the department it was a natural sequence almost that he should transfer his services to another field of fire-suppressing work.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for sample copy.

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1901 ANNOUNCEMENT.

FOR MORE THAN EIGHTEEN YEARS TELEGRAPH AGE has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other, and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. THEY HAVE BEEN INVALUABLE TO THE ACTIVE OPERATOR AS A PRACTICAL AID IN HIS DAILY EMPLOYMENT. The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth more than the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, the quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of TELEGRAPH AGE have come to be regarded as works of reference. They will increase in value as time goes by.

THE PROGRESSIVE CHARACTER of the paper itself is generally recognized, and its influence and high standing in all telegraphic and allied electrical circles is freely acknowledged.

CONDUCTED BY EXPERT TELEGRAPHERS, graduates themselves from the key, their training and sympathies put them in close touch with the conditions and needs of the craft still engaged in receiving and sending the dots and dashes.

THE SUBSTANTIAL ENCOURAGEMENT received in the past has already given TELEGRAPH AGE a wide circulation. And this has steadily grown. Yet the field is constantly expanding. Considering the variety, extent and character of the important matter the paper is now offering in all of its departments, so thoroughly meeting the requirements of up-to-date telegraphic information, technical and general, this journal should be an indispensable factor, not only in every telegraph office in the United States, Canada and Mexico, including those of the railroad, the police-telegraph and fire-alarm systems, but to every individual telegrapher as well. To the upbuilding of this larger circulation, the accomplishment of which means as much to the subscribers as to the publisher, because affording the guarantee of a still further improved paper, we ask the active co-operation of our friends everywhere.

TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call attention to this matter? A sample copy will be sent free to any address on application.

Address, remitting by express or post-office money order, draft or check,

J. B. TALTAVALL,

THE TELEGRAPH AGE,

253 BROADWAY, -- NEW YORK, U. S. A.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

Southern Pacific Telegraph System—Oregon Division.

Dunsmuir, 323 miles north of San Francisco, Cal., is the junction of the Pacific system and the Oregon lines of the Southern Pacific Company.



MR. G. C. MORRIS,

Chief Train Dispatcher, Oregon Division Southern Pacific Railway System.

The lines in Oregon constitute two dispatching districts, with headquarters at Ashland and Portland. Mr. L. R. Fields, like most of the Southern Pacific Company's superintendents, is an old dispatcher.

Following the windings of the Sacramento river over Black Butte, across the Shasta valley at the foot of hoary headed Mount Shasta, over the Siskiyou mountains from California into Oregon, through the Rogue River valley and Cow Creek Cañon to Roseburg, 250 miles, constitutes the dispatching district, with headquarters at Ashland.

Mr. G. C. Morris, the chief dispatcher, who was born in Washington county, Ohio, came to Oregon with his parents, in the early seventies, and located at Salem, in that State. He was educated at the Willamette University, and during vacations acted as messenger for the Western Union Telegraph Company, where he learned telegraphy under Wm. Dumars, then manager at Salem. He entered the service of the Oregon and California Railway in 1883, and steadily advanced until he was promoted to the dispatcher's office at Portland, Ore., in 1887. When the Oregon Limited lines were leased by the Southern Pacific Company, Mr. Morris was transferred to Dundee, as chief dispatcher. On the consolidation of the Oregon lines he returned to Portland. In 1897 the Shasta division was abolished and merged into the Sacramento division and Oregon lines, Mr. Morris being appointed chief dispatcher at Ashland.

Handling traffic over the heavy mountain grades, the distribution of power, the handling of "helpers," and keeping the line open during snow storms, constitute a complex problem, which, to successfully solve, demands the highest executive ability. All of the details have been fully worked out by Mr. Morris, and the record of the heavy traffic handled over the Shasta route during the last two years of "expansion" testify to his ability.

The Ashland force is constituted as follows: C. W. Martyn, first trick; J. L. May, second trick; L. L. Mulit, third trick; E. B. Pengra, extra dispatcher and copier, and C. H. Thomas, relay operator. There are thirty-six operators employed on the district.

Major John L. May, the second trick, is an old time telegrapher, having entered the Western Union employ in Indiana, at the age of eleven years. He was agent and Western Union manager at Winnemucca, Nevada, from 1878 to 1884, and afterwards entered the service of the Southern Pacific Company.

Major May was a captain in the 2nd Oregon regiment of volunteers during the late Spanish-American war and the Philippine rebellion which followed it, and served with much credit and distinction in the Philippine Islands until his regiment was mustered out, when he again resumed his dispatcher's trick in the Southern Pacific Company's service. On the reorganization of the Oregon National Guard, he was appointed a major in the regiment.

A future issue will contain a list of the telegraphers of this division.

Mr. George Estes, of San Francisco, Cal., chairman Pacific Division, Order Railway Telegraphers, is confined to his home with a severe case of fever.

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AUSTIN, TEXAS, WESTERN UNION.

Messrs. J. L. Rapp and W. B. Kerrigan, who were on the extra list here during the meeting of the Legislature, have left for St. Louis and are with the Western Union there.

Miss S. Bond, who had charge of the Capitol branch office during the legislative term, left for her home in San Antonio on the 10th inst., where she resumes charge of the Menger Hotel office.

Mr. W. S. Arnold, of this office for some months past, resigned on April 22 to go elsewhere.

Mr. John Broderick, formerly of the Western Union at Houston, is a recent arrival, and is working split trick, vice J. C. Judson, resigned.

PHILADELPHIA, PA., POSTAL.

One of the latest acquisitions to the main office staff is Miss Lillian Greiner; other more recent arrivals are the Messrs. R. B. Zeigler, H. O. Steltz, J. M. Fitzgerald and C. P. Monett.

Two important changes are announced in the American District Telegraph official circles: Mr. E. L. Fitzgerald has been appointed foreman of the construction and electric department, and Mr. Wm. E. Miley made manager of the messengers.

Shortly after returning from the task of moving the Baltimore main office, Chief Operator C. A. Stimpson went for a short rest at Old Point Comfort.

All-night-Chief Wm. J. Poppert was laid up for a few days with a heavy cold. Night Chief Wm. Baker, and Day Wire-chief Miles Dunn, filled in until Mr. Poppert's return.

Mr. Horace Holtzinger is off on an extended leave of absence with Texas as his objective point. Other departures are Messrs. W. H. Duckett and Ramsay.

A promotion from the service department to the key has been granted to Edward Burt.

Mr. Jay A. Thomas had to apply for release from the First New York by his physician's orders. One day recently, Mr. Thomas completely collapsed and couldn't telegraph a single character. The Messrs. Smith and Firman now have the bonus wire to themselves.

A new line through the berry district in Virginia, extending to Cape Charles, has been completed and opened to the public. A heavy business is anticipated during the season.

An office has been opened at Hamburg, Pa., with L. L. Francis in charge.

Cards of invitation have been sent out by Mr. and Mrs. John A. Sisk, in honor of their twentieth wedding anniversary.

Manager Howard Wright, of the Dry-Goods District office, is feeling quite satisfied at the good showing in business despite several hindering conditions.

Mrs. Ella J. Matthews, of the City Department, is off on a short vacation.

MINNEAPOLIS, MINN., N. AMN. TEL. CO.

Mr. H. A. Tuttle, our general manager, has just returned from an extended business and pleasure trip through the East and South. Manager D. G. McIntosh effectively took the helm during his absence.

J. T. McGrade died of consumption March 29, and was buried at Shakopee, Minn., April 31. The force was represented by seven or eight of the boys, and a beautiful floral emblem designating a telegraph line, with one broken wire, was sent. Mr. A. C. Kroll, split trick man, succeeds Mr. McGrade, and Mr. T. C. Coleman takes the split trick. This incidentally moves several others up a peg.

KANSAS CITY, POSTAL.

Charles G. Keeler, an operator well known in nearly every city throughout the country, and for many years, at different times, an employee of the Postal Telegraph-Cable Company at Kansas City, died on April 13, after an illness of only a few days. Mr. Keeler was a first class operator, being an exceptionally good penman, and was well liked by the force here and in many cities where he has worked for both the Western Union and Postal companies.

Mr. (familiarly known as "Buck") Keeler was taken to Shawnee, Kan., his old home, for burial. Manager Richards, Chief Operator Rommell and a delegation of operators from the office attended the funeral in a body.

John Hall of the night force has been promoted to the vacancy on the Chicago wire caused by the death of Mr. Keeler, and Ernest Kaapcke has succeeded Hall nights on the ways.

We are sorry to announce the death of Mrs. Will Emerson, wife of Manager Emerson, of the Postal at Lamar, Col. Mr. Emerson had only been married a year and the circumstances attending the death of his young wife are very distressing. He has the heartfelt sympathy of all.

CLEVELAND, OHIO, WESTERN UNION.

Henry J. Siegmiller, one of the old employees of this office, died on April 4. His remains were interred in the old East Cleveland cemetery. A cripple from early manhood, he entered the Cleveland office about eighteen years ago. Always a sufferer and heroically enduring the pain attendant upon several operations, he continued at work until a little over a year ago, when the ailment compelled him to abandon his duties and he left the key, never to return. Beautiful floral tributes from his associates marked the respect in which he was held.

LOS ANGELES, CAL., WESTERN UNION.

Business is still on the increase and regular men are doing extra work.

Mr. S. C. Stevenson, from the San Francisco Western Union office, is in the city visiting relatives. He hasn't visited the Western Union office here, however, and the presumption is he thinks the demand for men is so great that his vacation might be cut short were his presence known.

Mr. Robert Howell has left for the North.

Mr. Joseph Egan went to work the first of April.

MONTREAL, QUE., CANADIAN PACIFIC.

Mr. F. T. Jennings, chief operator, who has been granted leave of absence, has left for the Eastern townships to recuperate. It is to be hoped that

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he will derive much benefit by the change and the rest which he seeks. His duties during the coming summer will be manifold, for owing to the removal of the office into the new building, and the consequent preparation therefor, will place a burden of much responsibility upon him. Mr. H. Bott is acting chief, assisted by Mr. A. Malcolm.

Arrivals: E. R. Stinson, C. M. Hodge and George A. MacBain.

Resigned: W. C. Storey, W. Homar, R. Bunch and Thomas Massey.

Navigation having opened, business has since been increasing rapidly.

PHILADELPHIA, PA., WESTERN UNION.

The new head of the delivery department and messenger service, Mr. A. J. Whittingham, a well known gentleman who was with the American District Telegraph Company for many years, is rapidly bringing this branch of the business to a state of excellence not to be surpassed anywhere.

Mr. Edward Bartholomew of The Associated Press is the proud and happy father of a daughter born recently. The Associated Press operators presented the new baby with a solid silver spoon.

Slipping on the sidewalk, J. Gould of this office fell against the sharp edge of a step and cut quite a gash in his head, necessitating several stitches and his absence from duty for a week.

President Maize's partner in the grand march at the Aid Society's social affair was Miss Clara Grimley of this office instead of Mrs. Maize (who was unable to be present), as was erroneously stated in the previous issue.

ST. LOUIS, MO., WESTERN UNION.

The latest arrivals here, are: Misses Josie Claus, Anna Bauer and Anna Murphy; Messrs. T. E. Gilbert, L. F. Lynch, Guy H. Gilbert, Robert M. Wickes, P. A. Johnson, R. B. Harrington, F. L. Ramey, Edward Hulse, Samuel H. Nolle, Howard W. Withers, G. H. Campion, L. H. Ramey, A. H. Anderson, L. T. Campbell, George Jacobs, Edward E. Wayman, John A. Kelley, Walter E. Stein, A. C. Bennett and Geo. H. Armstrong. Resigned: Miss Nellie Mansfield, Charles Lampard, and George F. Monteith.

Mr. W. B. Jones, traveling freight agent of the Monon Route, formerly superintendent of telegraph of the Cotton Belt, was a visitor April 12. He is the same congenial Jones.

Mr. J. J. Murphy is working in a Little Rock, Ark., pool-room, temporarily. Victor Schuler, another operator, is in charge of the room.

Mrs. Nettie Ward experienced quite a siege of sickness during March and April. Two successful operations were performed and she is now convalescing, at her parent's home, in Caldwell, Kansas.

Miss Mary Tynan has returned from a vacation of several weeks.

Mr. and Mrs. Henry Van Dam left here for New York, April 1.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for a sample copy of the May 16 issue.

CHICAGO, ILL., WESTERN UNION.

Assistant Chief Operator George Dunning, the local agent of the Telegrapher's Mutual Benefit Association, is successfully demonstrating to new members its great value, it offering manifold advantages to the telegrapher. This company is one of the strongest insurance associations in the United States. Its membership is 5,100, it has a reserve fund of $180,000, and has paid in benefits to telegraphers about $1,000,000.

Mr. T. B. Irish has been appointed to the Marshalltown wire.

Our beloved friend, Frank D. Riordan, died April 19, after a relapse from typhoid pneumonia. Mr. Riordan was a resident of Austin, Ill. He served in the capacity of chief clerk to Superintendent Tubbs for eight years previous to 1898, since which time he has been a member of the Chicago Board of Trade. A wife and two children survive him. Much sorrow and sympathy is expresed by all.

Visitors: Former Chief Operator O. Tracy, of Keokuk, Ia., en route to Dickinson, S. D., where he will act as repeater chief; Lily F. Paylor, of Milwaukee, Wis., who is known in this office, not only for her gilt edge work on the Chicago local, but for her warm and genial manner; H. G. Miller, manager at Stirling, Ill., and W. Scott, operator at Hinsdale, Ill., Mr. Miller being on his way to his home in Indiana, where he expects to spend a short vacation; Mrs. Ida M. Norris, of Spring Valley, Ill., who while here was the guest of Mrs. Ida E. Palmer.

Mr. Charles Willoughby, Assistant Chief Operator of the Western Union office at San Francisco, Cal., spent a few days in this city recently visiting relatives. He made a few calls at this office and at the Board of Trade to greet old friends, many of whom he had not seen since leaving this office for the Pacific Coast, some thirteen years ago. Mr. Willoughby will spend a few days at St. Louis, and a part of his time with relatives at Du Quoin, Ill., and will then go East visiting New York and Buffalo, calling again at Chicago on his return to San Francisco.

Mr. A. E. Johnson, who has had leave of absence for the past month, has returned to the office much refreshed by his vacation.

Mr. Charles F. Ireland, who has been absent on account of illness, is reported as convalescing, and expects to report for duty soon.

Paul Ende resigned recently to take a position in New York.

John McArthur, of the Cedar Rapids local, has left for Las Vegas, N. M.

BALTIMORE, MD., WESTERN UNION.

Vice President W. H. Baker and Special Agent T. E. Fleming, of New York; Superintendent C. C. Adams and Chief Operator C. A. Stimpson, of Philadelphia, officials of the Postal Telegraph-Cable Co., called on Manager Bloxham on April 20, and were shown through our new office. They expressed themelves as much pleased with our up-to-date equipment.

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NEW YORK, WESTERN UNION.

Nicholas P. Moody, of this office, has recently become the father of twin boys.

Messrs. Martin Durivan and W. H. Gunning have recently returned from Florida.

Miss Nora, eldest daughter of Mr. John J. Barry, an old time telegrapher, now a school commissioner, of New York City, was married to Mr. Edward Murphy, of Richfield, Conn., at St. Augustine's Church, New York City, on Wednesday, April 17.

Mr. Walter C. Bunton, chief operator of the race department, was in Albany a few days since attending the annual meeting of the Royal Arcanum of the State of New York.

There is some discussion among the older members of the craft in this office as to the advisability of the Old Time Telegraph Association appointing a sub committee to look into the question of a home for telegraphers, which question was brought up at the last annual meeting at St. Paul, Minn., in September last. The matter is being favorably discussed in many sections of the country, and Mr. John Brant, the secretary of the Old Time Telegraphers' Association, is now being pressed to take the necessary action to bring the matter formally before the Montreal meeting in September.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

Don't give to an agent; send for us. Repairs on typewriters expressed or sent in to shop at reduction, to operators. Second-hand machines low price. Supplies, word-counters, etc., $2 up. Parts and attachments made. Wall & Butler, Typewriter Repairs, 57 Dey Street, New York. (Adv.)

NEW YORK, POSTAL.

Lieut. George N. McKibbin and fourteen members of the Signal Corps of Squadron A, New York National Guard, of which he is in command, accompanied by Capt. Earlinson, visited the Postal Telegraph Building on Friday evening, April 19, and spent several hours in inspecting the plant under the guidance of Mr. C. P. Bruch, assistant general manager, Mr. F. W. Jones, electrical engineer, Mr. J. F. Skirrow, assistant manager, and Mr. E. A. Coney. Practical demonstrations of the working of the quadruplex and other apparatus and of the time gained by the use of the Phillips Code were given and fully explained by Mr. Skirrow, assisted by Mr. Coney, Mr. Price and Mr. Peters. Lieut. McKibbin's object in having his men inspect the plant was to give them an opportunity to learn something of the methods used in actual practice, the men having already become proficient in heliograph and wigwag signals, and having taken up the study of the electric telegraph. The members of the party expressed themselves as being much pleased with the plant, and as having profited by their visit.

Mr. W. L. Herron has been assigned from the 6 A. M. to 3 P. M. trick; Messrs. J. J. Greene and C. O. Smith from split trick to 9 A. M.; Messrs. T. E. Doyle and J. P. Shields from split trick to 8 and 10 A. M. respectively; Robert Perrin to the Buffalo bonus.

Mr. T. M. Quill, for a long time at No. 20 Broad street, has been assigned to an 8 A. M. trick western division main office.

John E. Ferris, of Kansas City, Mo., a well known telegrapher who has been with H. C. Freedman & Co. for past two years, was taken to a sanitarium at Liberty, N. Y., on account of illness.

Resignations: Mr. L. E. Harper to accept a position on the Journal telegraphic staff; Mr. James E. Brick, one of the oldest employees in length of service, to engage in other business in Clifton, N. J.; Messrs. J. J. Cahill and W. E. Goodrich, who contemplate taking an extended trip for health and pleasure throughout the West, and incidentally a long rest at Mr. Goodrich's Indiana home.

TORONTO, ONT., CANADIAN PACIFIC.

We have some changes to report on our permanent staff this month. Mr. Bert Richardson has gone to the Postal at Detroit; Mr. C. Simpson, who copied Associated Press nights, to Vancouver, B. C., and Mr. Albert Ide to the Great Northwestern, this city. We wish them success in their new positions.

Messrs. J. Duggan, New York; Wm. Storey and Robert Bunch, Montreal, are on the extra list.

Mr. George Moss, of the Great Northwestern, Ottawa, has been placed on the permanent staff, and Ernie Preston, check boy, has been made an operator.

DETROIT, MICH., WESTERN UNION.

Mr. John McArdle, chief operator of this office, was married on April 16 to Miss Margaret Donnelly, for several years manager of the Western Union office at St. Ignace, Mich., at the home of the bride's parents on Mackinac island.

$100 Reward, $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages and that is Catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials.

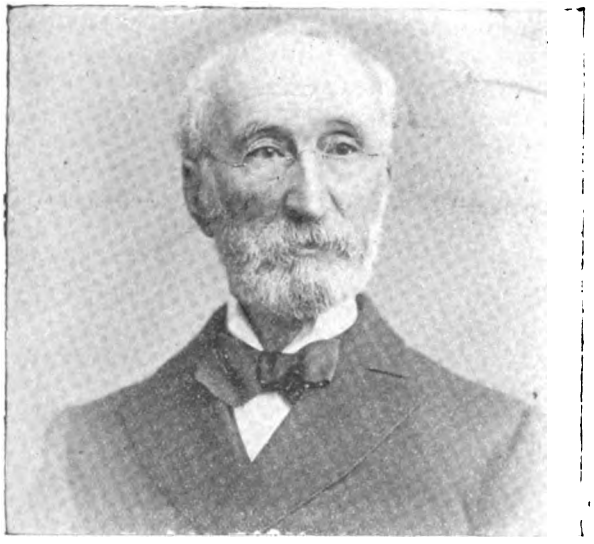
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Death of James D. Reid.

HIS DYING WORDS WERE: "GIVE ALL THE TELEGRAPH BOYS AND GIRLS MY LOVE."

The veteran telegrapher, James Douglas Reid, so generally and affectionally referred to as the "Father of the Telegraph," died at his home in the "Navarre" apartment house, 244 West Ninety-ninth street, New York, on Sunday, April 28. He was 82 years of age, and had but lately passed the anniversary of his birth, which occurred in Edinburgh, Scotland, on March 22, 1819. His death was due to an operation performed early in February for the removal of an abcess on his leg. While his health had been remarkably good up to the time of this operation, yet because of his subsequent weakened state and of his advanced age, he was unable to rally from the shock, and has lingered along gradually sinking away to his death.



THE LATE JAMES DOUGLAS REID.

In the death of Mr. Reid a conspicuous figure in telegraph circles, and a close personal friend of Prof. Morse, the inventor of the telegraph, has passed away full of years and of honors. No one within the telegraphic fraternity held closer possession of the love and respect of its members than Mr. Reid, and a feeling of profound sorrow, as of personal loss, will pervade all hearts at the sad news conveyed by this announcement. Mr. Reid's high qualities of mind and heart, his innate refinement and gentleness of manner, to which so many bear affectionate testimony, will render his memory a cherished one.

Mr. Reid, who since his retirement from the United States consulship at Dunfermline, Scotland, in 1897, had resided at Edinburgh, returned to this country, the land of his adoption, early in September, 1900. The Old Time Telegraphers will associate with pleasant memories his attendance, as their guest, at their last annual reunion at St. Paul and Minneapolis, shortly after his arrival. It was the first and only public function at which he appeared, and the attention and honor conferred upon the distinguished visitor on the occasion was a source of much gratification to him.

Mr. Reid's contributions to the literature of the telegraph were numerous. His greatest work, "The Telegraph in America," a volume of nearly 900 pages, and which ran through two editions, and accepted as of standard authority, traces with highly interesting and minute detail the history of every telegraph company that had existence in the United States up to that date, besides presenting a vast amount of collateral matter, clearly showing the writer's familiarity with and grasp of his subject. His receptive mind was a storehouse of telegraphic information. This was due in great measure to his extensive acquaintance among those who were identified with the telegraph from practically the date of its adoption, for he himself became connected with it as early as 1845, when as a young man he superintended the building of the pioneer Atlantic and Ohio line for Henry O'Reilly between Philadelphia and Pittsburg. His later experiences as promoter, constructor and executive officer in telegraph management brought him into intimate personal relations with those who were eminent in the profession. He founded and edited "The Telegraph Review" April 1, 1853, a quarterly, and the first electrical publication in the world. He was one of the founders of the Telegraphers' Mutual Benefit Association and was its first president, holding certificate No. 1 in its membership.

Andrew Carnegie, who as a poor boy accepted a position from Mr. Reid at Pittsburg, first as a messenger and afterwards as an operator, never forgot the kindness shown him by one whom he always regarded as his benefactor. On several public occasions Mr. Carnegie has referred to this incident, notably so at a dinner tendered to Mr. Reid at Delmonico's on the eve of his departure in November, 1889 to enter upon the duties of consul at Dunfermline, Scotland. In person, Mr. Reid was of medium height, slim of build and of courtly manner, the personification of a gentleman of the old school. During the late fall and early winter he was a frequent and always welcome visitor in downtown telegraph circles.

Mr. Reid leaves a wife and daughter, the latter arriving from Scotland a few days before her father's death.

The funeral services, which were largely attended and highly impressive in character, were held at the Fifth Avenue Baptist Church, New York, on April 30, at four P. M., and were conducted by the Rev. Robert S. MacArthur, D.D., and Rev. Henry M. Sanders, D.D., who dwelt at length on the beautiful Christian character of the deceased. Mr. Walter C. Burton spoke eloquently of the telegraphic career of Mr. Reid and of the intimate and cordial relations that existed between him and the fraternity in general, to whom were addressed his dying words: "Give all the telegraph boys and girls my love." There were a large number of telegraphers present, including many of the officials of the Western Union, the Postal Telegraph and the Cable Companies.

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The body of Mr. Reid was taken to Rochester, N. Y., his old home, for interment. A full account of the services at the church will be published in the May 16 issue of this paper.

Obituary.

Robert T. Quarterman, an operator employed by the Western Union Telegraph Company, died at Natchez, Miss., on April 9.

Edward B. Whitcomb, editor and proprietor of the "Mail and Times," of Des Moines, Iowa, and an old time telegrapher, died in that city on April 10.

H. B. Tannatt, who up to several years ago was manager of the Western Union office at Springfield, Mass., died in that city on April 20, aged 51 years.

Jerome B. Cable, an old telegrapher, and formerly division superintendent of the Chicago, Milwaukee and St. Paul Railway Company, died in St. Paul, Minn., on April 19, aged 47 years.

George L. Vaughan, for the past three years manager of the Western Union Telegraph office at Houston, Texas, while delirious from sickness, jumped from a window at Marlin, Texas, April 18, whither he had gone for medical treatment, and was almost instantly killed. He was 34 years of age, and a native of Missouri.

Major William Monaghan, a paymaster in the volunteer army, died at Manila, Philippine Islands, on April 13. He was a soldier of the Civil War, was appointed to his present position in June, 1898, and had been selected as a captain and paymaster in the regular army. In 1869 he was a telegrapher at Wellsville, Ohio, afterwards being located at various other points.

Prof. Henry A. Rowland, the world-famous professor of physics at the Johns Hopkins University, died at Baltimore, Md., April 16. Dr. Rowland had been in poor health all the winter. He was a member of the Electrical Congress that met in Paris in 1881, and for his services was made a Chevalier of the Legion of Honor. His most notable achievement was a multiplex telegraph invention.

Personal Mention.

Mr. E. C. Bradley, vice-president of the Postal Telegraph-Cable Company, New York, has recently been in the West on a business trip.

Mr. Charles Cuttriss, electrical engineer of the Commercial Cable Company, New York, has returned from Europe, where he spent a vacation of six weeks.

Miss Helen J. Eckert, daughter of Col. Wm. H. Eckert, and well known in telegraph and telephone circles, was married at the residence of her father in New York, on April 20, to Mr. Albert E. Mathews, of Buffalo, N. Y. Among the guests present were Gen. Thomas T. Eckert, uncle of the bride.

Mr. George G. Ward, vice-president and general manager of the Commercial Cable Company, New York, and Mr. Albert Beck, secretary of the same interests, sailed for England on the steamer Oceanic on April 24.

Signor Marconi, of wireless telegraph fame, reached London on April 27 on his return to Europe from this country. He has announced his engagement to Miss Josephine B. Holman, of New York.

Mr. W. W. Cook, counsel, and Mr. George Clapperton, traffic manager, Commercial Cable Company, appeared at the War Department, Washington, D. C., April 23, on business connected with their company.

Mr. John W. Mackay, president of the Postal Telegraph-Cable Company and of the Commercial Cable Company, recently arrived in San Francisco, and will spend several weeks in looking after his Western interests.

Henry H. Chandler, a brother of Col. A. B. Chandler, chairman of the Board of Directors of the Postal Telegraph-Cable Company, New York, died at his home in Randolph, Vt., on April 18, aged 76 years.

Mr. John A. Sabin, an old-time telegrapher, for the past fifteen years president of the Pacific Coast Telephone Company, has accepted the presidencies, also, of the Chicago Telephone Company and the Central Union Telephone Company, of Chicago.

Manager M. Marean, of the Western Union Telegraph Company, and Manager G. W. Ribble, of the Postal Telegraph-Cable Company, Washington, D. C., are accompanying President McKinley on his special train during his trip to the Pacific Coast.

Mr. Arthur L. Tinker, the son of Mr. Charles A. Tinker, general superintendent of the Western Union Telegraph Company, New York, representing the Gamewell Fire Alarm Telegraph Company, of New York, sailed for Germany on the steamer Lahn on April 24, whither he goes to install a plant of that company for exhibition at the Exposition to open at Berlin, June 1. After the close of the Exposition in September, Mr. Tinker will probably go to London in the further interest of his company. In prospect of an extended stay abroad he takes his family with him.

Miss Flaurence Olyphant Ward, only daughter of Mr. George Gray Ward, vice-president and general manager of the Commercial Cable Company, New York, was married on April 16 to Lieut. Henry Hughes Hough, U. S. Navy, at the Church of the Heavenly Rest, Fifth avenue and Forty-third street, New York city. This social event was a very brilliant one. After the ceremony in the church a reception was held at the home of the bride's parents, No. 51 West Fifty-third street, New York. The bride received a large number of beautiful presents. Many of the officials of the Commercial Cable and Postal Telegraph Companies were present.

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Municipal Electricians.

James Knibbs, superintendent of the Fire Alarm Telegraph, of Troy, N. Y., for eighteen years, died in that city April 16, aged 73 years.

Mr. George Farrell, a well known old time telegrapher, is acting superintendent of the fire alarm system of New York, vice H. F. Blackwell, Jr., resigned to go to Honduras, where he will engage in electrical pursuits.

Mr. Morris W. Mead, of Pittsburg, Pa., president of the International Association of Municipal Electricians, will deliver an address outlining the progress of electricity in municipal affairs, on Municipal Day, August 26, at the Pan-American Exposition, Buffalo, N. Y.

Members of the Executive Committee of the International Association of Municipal Electricians, including Morris W. Mead, of Pittsburg, Pa.; J. T. Zelliff, of Paterson, N. J.; Adam Bosch, of Newark, N. J.; Wm. Y. Ellett, of Elmira, N. Y., and Frank C. Mason, of Brooklyn, N. Y., met in the latter city, on April 19, for the transaction of routine business of the association. Messrs. Mead, Ellett and Mason, who were appointed as a committee, went to Buffalo, N. Y., April 27, there to make hotel and other necessary arrangements for the annual convention of the Municipal Electricians, which will take place at Niagara Falls, N. Y., at the National Food Convention Hall, Monday, Tuesday and Wednesday, Sept. 2, 3, 4. While at Buffalo the committee were entertained by H. D. Reynolds, superintendent of the Postal Telegraph-Cable Company, and by Chief Smith, superintendent of the Fire Alarm Telegraph. The Pan-American Exposition buildings were illuminated for the first time on Saturday night last in honor of these visiting gentlemen.

Odds and Ends.

[Short, pithy items bearing on the telegraph are solicited for this column.—EDITOR.]

The position of superintendent of underground is in no wise related to the occupation of an undertaker.

"Is 'Sing Sing' one word?" said the receiver, with a short check.

"No," said the sender, "it's a duet!"

"Do you ever use any water at all?" exclaimed the irate manager scornfully to an operator who had been absent three weeks and just returned looking like the wreck of the Hesperus.

"Sure," stammered the culprit apologetically, "a little in the ink sometimes!"

EARLY SNOWBALLS (to check-boy): "Say, Sonny, do they need men upstairs?"

CHECKY: "Naw; dey's got men to burn!"

"How do you know?"

"W'y, dey 'fired' one yest'day!"

A singular illustrated story is going the rounds of the press to the effect that Albert J. La Faye, of New York, and John Coleberry, of Pittsburg, have worked the same newspaper wires together for so long a period that both have grown not only to look and think alike, but to even closely resemble each other in physical build. We have it from good authority, however, that each man still continues to draw his individual pay.

Wanted Her Message Sent Sealed.

A woman came into the receiving department of a telegraph office recently and sat down to write a message. She took her time to it, and she covered several pages before she was through. Then she carefully folded the dispatch and placed it in an envelope that was lying on the table. "I was watching her," said the receiving clerk, "and supposed that she was writing a note to send out by messenger, but I was mistaken. She came up to the counter and handed the envelope to me with the request that it be sent. I asked her where she wanted it to be sent, and she huffily told me to send it to the address on the envelope. 'But, madame,' I said, 'this is to go out of town.' 'I know it,' she snapped out. 'Then it should not be sealed; we must know what it is to send it.' 'Why don't you put it on the wire and send it just as it is?' she asked. I told her what was required, and she took her message from the envelope. That woman had written about two hundred words in her message, and was astonished when I told her what it would cost. She said that she always thought it was the proper thing to place the message in an envelope and pay twenty-five cents for sending it. She always received her messages in an envelope. I explained to her that a message of ten words cost twenty-five cents, and she set to work to boil down her message to that size. It was a pretty hard thing for her to do, but she finally succeeded, and as she handed me the message and the money she said: 'Please don't say a word about this. It is the first message I ever sent, and I am afraid I made a bad blunder.'"

TELEGRAPH AGE should go regularly to every one interested in the telegraph.

Readers of the TELEGRAPH AGE are referred to the advertisement of the Montauk Cable Company on page two of the front cover. (Adv.)

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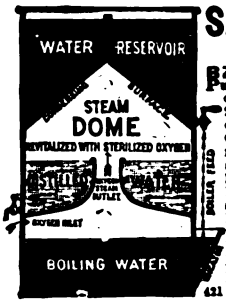
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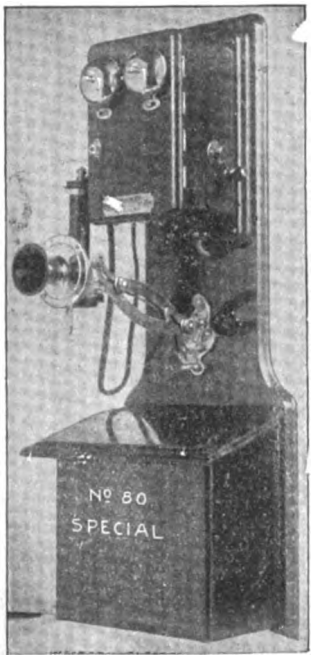
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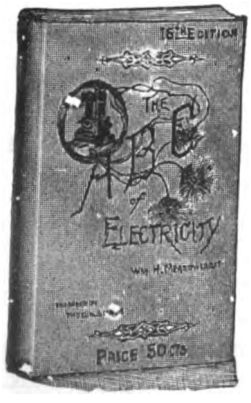
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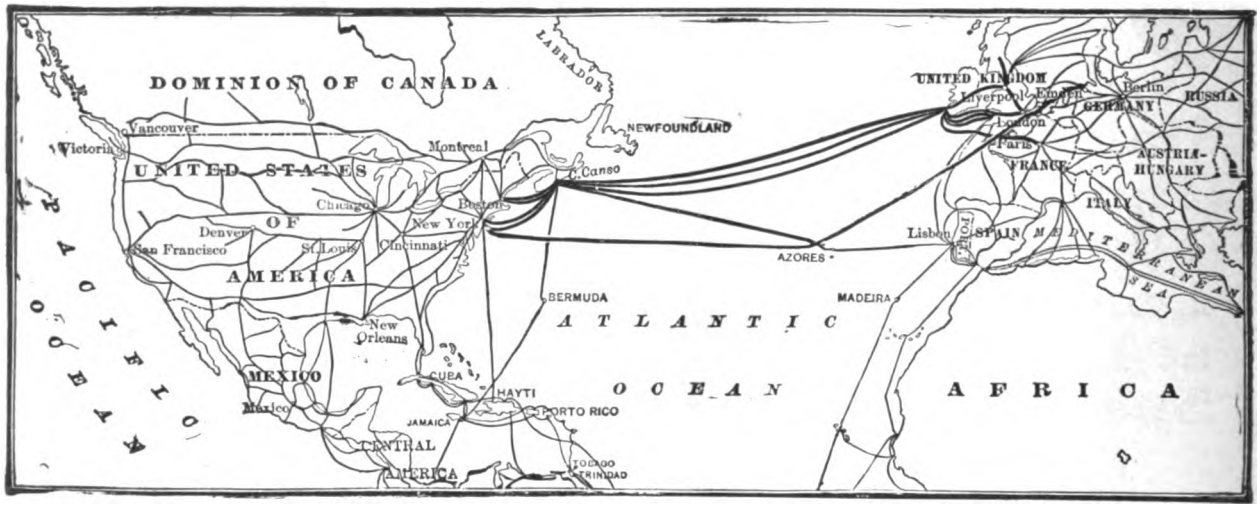
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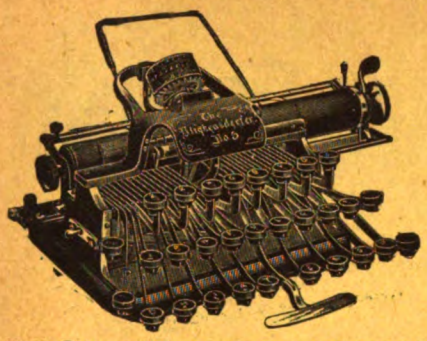
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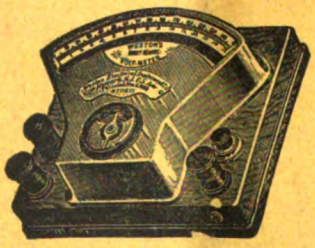
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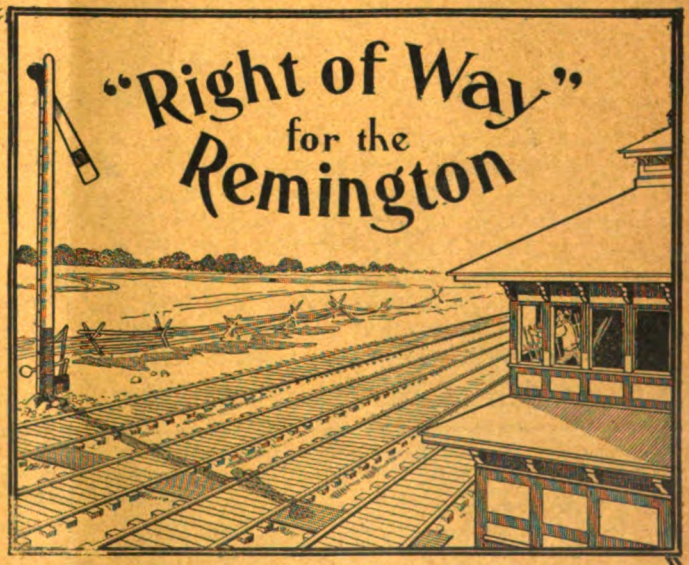
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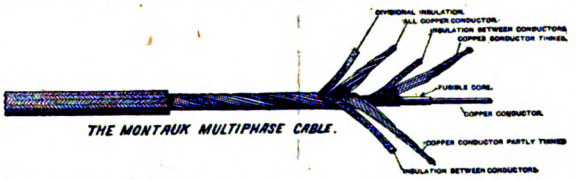
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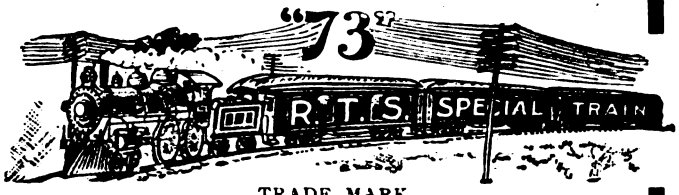
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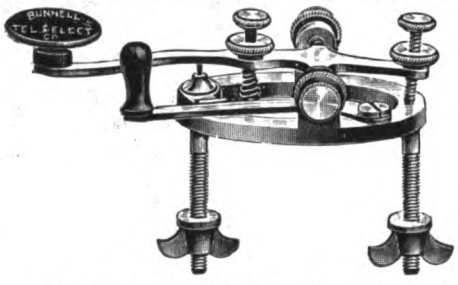
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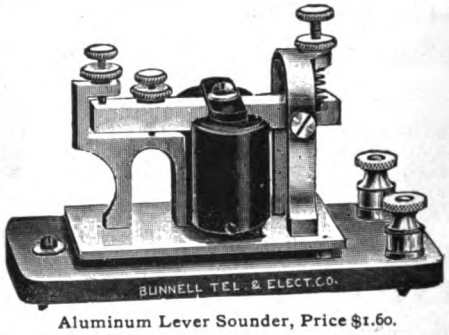
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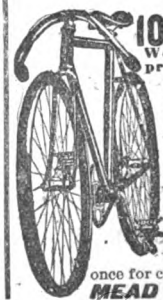
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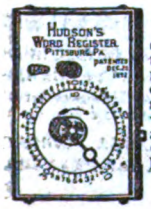
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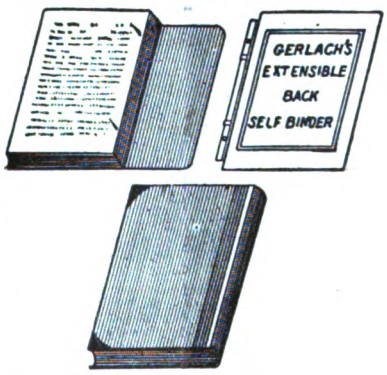
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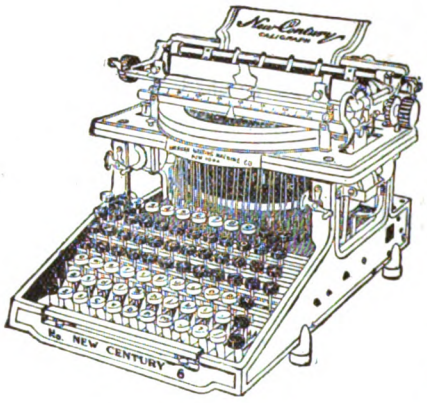
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THE TELEGRAPH AGE.

No. 10. NEW YORK, MAY 16, 1901. Vol. XXIV.

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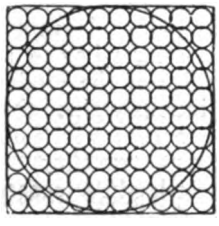
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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

Wire Gauges.

In order to have a systematic plan of constructing wires to fulfil the requirements of any given specification, manufacturers have quite universally adopted the circular mil as the unit of area when considering the cross section of an electric conductor. Mil means "one thousandth of," and is the area of a circle having a diameter of one thousandth of an inch; hence if we square the diameter of a conductor given in thousandths of an inch, the product will show the number of circular mils that can be placed side by side in a square the sides of which are equal to the diameter that has been squared; the united areas of the small circles contained within such square being equal to the area of the large circle.



This is illustrated in the accompanying cut taken from "Pocket Edition of Diagrams" by the writer of this article. The large circle represents a wire 10 mils in diameter and the small circles are circular mils (100), whose united areas equal the area of the large circle.

Now, a wire possessing one circular mil diameter has been measured in nearly every conceivable manner, with the result that we know exactly how much a given length of it will weigh; how much resistance in ohms it contains; the amount of current in amperes it will carry safely, and other equally valuable information. Using the respective findings as separate units of measurement, it follows that the value of any larger size conductor must necessarily be represented by some multiplication or division of the individual units.

As a matter of fact all information of this character may be found in regularly compiled tables and formulæ contained in technical books on electricity, thus enabling electrical engineers to at once decide upon the size of wire required for any given purpose or estimate the weight and cost per mile of a conductor from a few inches of the size desired as a sample with no other means than a pocket wire gauge and a knowledge of the proper formula.

This pocket gauge will show, for instance, that the diameter of the sample wire is just 120 mils. In order to ascertain the weight in pounds per mile he uses the following formula: $\frac{d^2}{62.5}$, which means that the square of d^2 (the diameter in mils) divided by 62.5 will give him the exact weight of the copper conductor. Thus the square of 120 is 14,400, which divided by 62.5 equals 230 pounds. This quotient multiplied by the market price of copper per pound of course tells what the cost must be. In like manner the resistance of the wire per mile may be found by the formula $\frac{56,970}{d^2} =$ ohms. Figured out this will be found to be about 3.97 ohms per mile.

Turing to the table, it will be seen that according to the Birmingham wire gauge 120 mils represents an 11-gauge wire, the size now quite generally adopted by telegraph companies for their longest quadruplex circuits. Another table will show just how much current each conductor will carry safely, what strain it will withstand and give almost every fact one might wish to know.

Other metals than copper are measured in identically the same manner, the only changes in the formulæ being in the numerals. Thus while the weight per mile of copper is found by the formula $\frac{d^2}{62.5}$, for iron it would be $\frac{d^2}{72}$.

It is to be regretted that the various wire manufacturers do not adopt a universal gauge for conductors. The Birmingham (B. W. G.) and the Washburn & Moen (W. & M.) gauges are very nearly the same for similar numbers, while those of the Brown & Sharp (B. & S.) manufacture are probably 35 per cent. smaller. Thus an 11-gauge B. W. G., or a W. & M. would mean a diameter of 120 mils and weigh 230 pounds per mile for copper, while the same gauge B. & S. would call for 91 mils in diameter and a weight of but 132 pounds per mile.

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To avoid misunderstandings of this kind the policy of calling for a given weight per mile when ordering conductors is becoming very much in vogue with careful buyers, and specifications are usually worded to that effect.

"Ho," at Eagle Pass, Texas, sends the following communication:

"March 9, about 3.30 P. M. the two telegraph wires running from Spofford Junction, Tex., to Eagle Pass, Tex., a distance of thirty-five miles, were affected by a very strong electrical current resembling that of an electric light or trolley current. The disturbance lasted eight or ten hours, and the current was so strong that it was found necessary to disconnect the wires from the switch boards, both at Spofford and at Eagle Pass. The battery for these wires, which is about 35 cells, is located at Spofford, the Eagle Pass end being grounded.

"During this trouble the weather was perfectly clear. The wind was blowing very hard from the north, and a terrific sand storm was prevailing. The wires on the main line of the Southern Pacific, through Spofford, and the Mexican International wires running south from Eagle Pass were not affected. The electric light plant at Eagle Pass was not in operation until several hours after the trouble appeared on the telegraph wires, and a close inspection during the time of the trouble failed to discover any cross or other wire trouble. Will some one explain this phenomena?"

In the absence of fuller details as to the extent and exact location of the sand storm mentioned it is rather difficult to give an absolutely reliable explanation of the phenomenon, but it is fairly safe to say that the abnormal current developed in the wires was due to the impact of the sand against the conductors, the friction of which created a great electromotive force in the latter. This phenomenon has been noticed heretofore in sandy sections of the country when the wind blows in a certain direction.

One can easily demonstrate the power of frictional electricity in a conductor by means of a few feet of iron wire and an electroscope. Directly the wire is rubbed with a piece of flannel, or other suitable substance, the needle is at once deflected, showing the presence of a current due to that cause.

The confinement of the phenomenon to the two circuits mentioned was probably due to the location and direction of the storm, which was evidently more favorable to them for the development of electricity than to other circuits which did not cross the path of the storm at a proper angle.

It is true that such phenomena are frequently due to earth currents during the existence of the aurora borealis and other electrical disturbances, but the manifestations experienced by our Eagle Pass friend can hardly be credited to that source, as the value and direction of such earth currents vary so rapidly that their source is seldom in doubt, and their range of travel is usually quite extensive—entirely too great, in fact, to confine operations between Spofford and Eagle Pass only.

Personal Mention.

Mr. A. S. Brown, electrical engineer of the Western Union Telegraph Co., New York, will take a long leave of absence.

Mr. W. D. Francis, superintendent of supplies, Postal Telegraph-Cable Company, New York, is in San Francisco, Cal., where he is spending a vacation.

Mr. Francis W. Jones, electrical engineer of the Postal Telegraph-Cable Company, New York, has returned from a tour of inspection to Pittsburg, Cleveland, Indianapolis, Chicago and St. Louis.

Mr. Chas. F. Annett, assistant superintendent of telegraph of the Illinois Central Railroad, Chicago, Ill., represented his company on President McKinley's special train between Memphis and New Orleans.

Mr. Edward B. Pillsbury, superintendent of the Postal Telegraph-Cable Co., at Boston, Mass., sailed from New York for Europe on April 24, whither he goes on a vacation. During his absence Assistant Superintendent Charles E. Bagley will be acting superintendent in New England.

Mr. Franz Rummel, the celebrated Anglo-German pianist and son-in-law of Prof. S. F. B. Morse, has just died in Germany. While touring in this country he met and married the beautiful daughter of Morse, Leila, with whom social gossip once associated the name of Governor Samuel J. Tilden. He leaves a widow and three sons.

The engagement of Miss Ethel C. Baker and Mr. H. LeRoy Moody was announced some time since. Miss Baker is the daughter of Mr. William H. Baker, vice-president and general manager of the Postal Telegraph-Cable Company, New York. The date of the wedding has been fixed for June 18 next at Mr. Baker's home in Brooklyn, N. Y. Because of the ill health of Mrs. Baker the wedding will be a very quiet one, only the members of the families of the bride and groom and their most intimate friends being expected to be present.

Mr. Daniel S. Spencer, who has been appointed assistant general passenger and ticket agent of the Oregon Short Line Railroad, is a graduate of that school which has furnished so many prominent men for railroad service—the telegraph office. His first position was as messenger boy in 1871, and in 1874 he entered the service of the Utah Central Railway and has been continuously since that time connected with the railways centering in Salt Lake City, having been clerk, agent, traveling auditor, train dispatcher and chief clerk of the passenger department. His relations with the public and with railway officers have gained for him an extensive acquaintance and a wide popularity.

Mr. Albert C. Case, of the Carnegie Company, who is to become president of the American Cotton Company on June 1, is a native of New Jersey, and at seventeen he became a telegrapher on the Pennsylvania Railroad. He was dispatcher when he retired to become, on May 1, 1886, auditor and cashier of the Baltimore and Ohio Telegraph Company in New York. He next became passenger agent for

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the Lehigh Valley Railroad. He then went to Atlanta to revise the Atlanta branch of Bradstreet's Mercantile Agency, later becoming Pittsburg's superintendent. On January 1, 1896, he was made credit manager of the Carnegie Company. He was admitted to the Carnegie partnership in 1899, and now holds a considerable interest in the United States Steel Corporation. In five years, although transacting hundreds of millions of dollars of business, the loss to the Carnegie Company through bad debts was only nine one-thousandths of 1 per cent., a record unparalleled in commercial history.

Miscellaneous Items.

Mr. J. Delany, marine agent of the Commercial Cable Company, New York, has removed to Plainfield, N. J., for the summer.

Mr. A. Klein, of the Postal Telegraph-Cable Company, Birmingham, Ala., in a recent letter, writes: "A telegraph man who does not read TELEGRAPH AGE clearly works at a disadvantage."

Mr. E. W. Collins, who retired from the position of manager of the Postal Telegraph-Cable Company, Cleveland, O., April 30, prior to his going to Cincinnati, to enter upon his duties there as superintendent of the same interests, was the recipient of a diamond ring tendered by the employees of the office as a token of the esteem in which they held him. The presentation was made by A. X. Ernewein, wire chief.

Owing to the vacancy created by the prolonged illness of Mr. Edward F. Cummings, Mr. John Brant, on May 2, was elected by the board of management, vice-president of the Serial Building, Loan and Savings Institution, New York, to serve out the term of Mr. Cummings. This company has lately disposed of a large lot of real estate, and it is expected that another deal will soon be made that will result in diminishing its property holdings. This will materially inure to the benefit of the association, which to-day stands as one of the best in the city.

Resignations and Appointments.

Mr. Frank S. Gould has been appointed manager of the Postal Telegraph-Cable Company at Grand Rapids, Mich., vice A. V. Johnson, resigned.

Mr. Frank Sassuer, for many years of the Western Union office at Anderson, Ind., has been appointed manager at Elwood, Ind., to succeed Ralph E. Scorah, who resigned to engage in manufacturing business at Kokomo, Ind.

Obituary.

Howard Sparr, a railroad telegrapher, died from the result of an accident at his home in Reading, Pa., on May 6.

J. H. Farnham, of Boston, Mass., chief electrician of the New England Telephone and Telegraph Co., was shot and instantly killed at Portland, Me., on April 24, by an employee of the company who was thought to be insane. Mr. Farnham was formerly a telegrapher, and from 1879 to 1885 was manager of various Western Union offices in New England.

Death of William A. Wallace.

William A. Wallace, a well-known Chicago, Ill., telegrapher, died at Gowanda, N. Y., on April 14. Mr. Wallace was born at Geneva, N. Y., December 14, 1836, and learned telegraphy when but a lad. Mr. H. P. Dwight, in 1852, appointed him manager at Amherstburg, Canada. Here for three years he also published The Telegraph. In 1857 he worked for the Western Union Telegraph Company at Chicago, when the entire force of that office consisted of a manager, three operators, a receiving and delivering clerk and five messengers. In 1864 he was the Buffalo, N. Y., agent for the New York State Associated Press. Here he distinguished himself in a trial of speed, receiving six copies on manifold of 2,464 words of Congressional proceedings in one hour without a break, as timed by the late J. D. Reid and A. S. Brown, of New York. Afterwards in Chicago he published The Switch. In 1881-82 he was manager on the Chicago Board of Trade for the Baltimore and Ohio Telegraph Company. He was in his time one of the most brilliant operators in the United States and remained with the Western Union in Chicago until about three years ago when, on account of failing health, he retired to Gowanda, N. Y., where he died. The interment was in Forest Lawn Cemetery, Buffalo, N. Y.



THE LATE WILLIAM A. WALLACE.

Telegraph operators in the Police Department of New York are Fortune's favorites. The bill to give all of them the salaries and the rank of sergeants in the force has become a law, and under that statute every one of them will get much higher pay and enjoy far more privileges than the thousands of equally skilful tappers of the key who are not attached to this prodigal department.

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Advice of a Practical Order.

Charles M. Schwab, president of the United States Steel Corporation, in a recent address to the graduating class of the St. George's Evening Trade School at the commencement exercises in the Memorial Building, New York, gave utterance to some fundamental truths that are as applicable to telegraphers as well as to others. He declared a college education usually a handicap to one who would succeed in business. He held the boy who got an early start the more certain to succeed.

Mr. Schwab was introduced as a man who had fought battles and won victories in the struggle of life, and therefore was well qualified to give boys advice founded on practical experience.

"I will speak to you," began Mr. Schwab, "just as if you had come to my office asking for advice, and the first thing I will say to you is to come alone. Don't come with somebody's backing. Learn to rely upon yourself. That is the first lesson. If you come indorsed by somebody of influence, it always will leave room for others to say that whatever position you may get, you got by influence and not because of your individual merit. No true success is built on influence. You must win your position for yourself.

"Then here is another thing that is essential—you must do what you are employed to do a little better than anybody else does it. Everybody is expected to do his duty, but the boy who does his duty, and a little more than his duty, is the boy who is going to succeed in this world. You must take an interest in what you are doing, and it must be a genuine interest."

Here Mr. Schwab told a story which everybody understood referred to himself. Afterward he told another story which it was equally well understood referred to H. C. Frick. The stories follow:

"There were ten boys employed by a concern once, and one night the manager said to his subordinate: 'Tell the boys they are to stay a little longer to-night—tell them that they are to stay until 6 o'clock. Don't tell them why. Just tell them that and watch them.' So this was done, and when 6 o'clock came around there was just one boy who was wholly interested in his work, and was not watching the clock to see what time it was. That boy was the one the manager wanted, and he was taken into the office, and as he continued to manifest the same interest in his work he was promoted until at last he got quite a responsible place.

"Then there was another boy. He began carrying water, and he did it so much better than any other boy, seeing to it always that the men had good water, cool water, and plenty of it, that he attracted attention to himself. He was taken into the office, where he became in time superintendent and then general manager, and he is now the man that is at the head of the great Carnegie Company, with thousands of men under him. As a boy he did more than the ordinary run of boys did, and so attracted attention, and that was the secret of his first step upward.

"I was in a bank down-town the other day when a newsboy came in and sold the banker a paper. After he had gone out the banker said to me: 'For two years now that boy has been coming in here at the time I told him to come—2 o'clock. He does not come before two nor after two, but at two precisely. He has sold me a paper every week day in that way when I have been here, without a break. He sells it for just 1 cent—its price. He neither asks more nor seems to expect more.

"'It is a cold commercial transaction. Now, a boy that will attend to business in that way has got stuff in him. He does not know it yet, but I am going to put him in my bank and you will see that he will be heard from.

"Another thing, boys, and that is get an early start. The boy in business who starts with a manual school education at seventeen or eighteen will get a start that the boy who goes through college will never catch up with, other things being equal. That does not apply to the professions, of course, only to business. Out of forty men I know who are great leaders in the business world only two are college graduates."

Co-operation.

To co-operate is to act or operate jointly with another or others, or to concur in action, effrot or effect. Such is the definition found in Webster's dictionary. To successfully co-operate it is necessary for all concerned to be co-operators. In the United States we are slowly learning of the immense advantages to be gained by the wealth producers if they could inaugurate a correct plan of procedure with this object in view. This is the foundation of nearly all the reform movements, and it is sincerely to be hoped that eventually all the reform forces will combine upon a plan that will be mutually satisfactory.

The individualistic idea that has predominated in this country allows too much liberty to superior intelligence and cunning. Liberty is perhaps not the proper word to use, license would be more appropriate. The class that has taken undue advantage of this country's liberal plan of government opposes co-operation in any of its forms.

Signal Corps Changes.

The following changes in the Signal Corps are ordered from Washington: Major George P. Scriven will proceed to Washington and report to the chief signal officer for duty as disbursing officer in his office, to relieve Captain Eugene O. Fechet, who will proceed to Manila for assignment to duty. Captain Otto A. Nesmith will proceed to Havana for duty as signal officer of that department, to relieve Colonel Henry H. C. Dunwoody, who will repair to Washington, and report to the chief signal officer for temporary duty in his office and then for duty as signal officer of the Department of the East, to relieve Captain Samuel Reber, who will repair to Washington and report for further orders.

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Correspondence.

A PLEA FOR HAPPY-GO-LUCKY MORSE SENDING.

Editor TELEGRAPH AGE:

Too much abuse has been heaped upon the devoted heads of the bad Morse men. It is time for a halt while we show an ignorant and unappreciating world our real worth.

In the first place, "a certain amount of fleas," we are assured by Mr. Harum, "is good for a dog;" and he had just as lief play flea as dog any day. There are so many of these conceited parties who travel around on their reputations for "sending good stuff" that the world would become an impossible abiding place if a few of us did not strive to keep them within bounds.

The idea of expecting the destruction of individuality in sending! Would these carpers destroy all the spice of the craft by reducing the sending side to the dull level of the receiving side, all of whose typewritten copies "look alike?" Never! Never, while one man remains who has the moral courage to play "dog in the manger."

What can equal the satisfaction of the sender who perceives in his mind's eye one of the immaculates a couple of hundred miles away, and about sixteen words behind, scratching his head and exclaiming, "That was 86 all right, but shoot me if I know where the 8 ended and where the 6 began!" In the grand economy of things, one man's right to joy is as good as another's. The immaculates must not hug to themselves the delusion that they are the only real things. The rag-time senders have rights which must be respected. And, furthermore, it stimulates mental activity to be left in doubt whether a shaky "q" should be rendered "in" or "on" or put through the code and turned out "on the." Therefore the rattlesnake curves and combinations are entitled to a high place in the halls of Morse fame.

Long live the man who can, if he tries, but won't try! Also, he who can rise superior to all rules of punctuation aye, even to the point of discarding the troublesome practice entirely. What interest has the telegrapher in conserving the sense of the business he handles? His duty ends when he starts his hand to work. Then is his mind free to wander back to the scenes of his boyhood and chase the cows around the pasture for exercise; or sally forth into the future when he shall have an automobile and a bank book, and in these joys to revel until he finds he has closed his key and the other man is getting back at him. ANON.

New York, May 8, 1901.

Recent Telegraph Patent.

A patent has been granted to Dr. G. A. Cardwell, of New York, for a printing telegraph.

Every telegrapher who loves his profession, who is determined to master its technicalities, and thus insure for himself the confidence and respect of his official superiors and place himself in the direct line of promotion, should subscribe for TELEGRAPH AGE.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; price, $1, reduced from $1.50.

"AMERICAN TELEGRAPHY," by William Maver, Jr., enlarged and improved; 600 pages; 475 illustrations; clear, lucid and comprehensive in its treatment of the subject, the ranking work of of its kind, and of high practical value to every telegrapher; bound in cloth; price, $3.50.

"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume, of which but a few copies of the first edition now remain, presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; price, $5.

"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones, 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Novel Cable Landing.

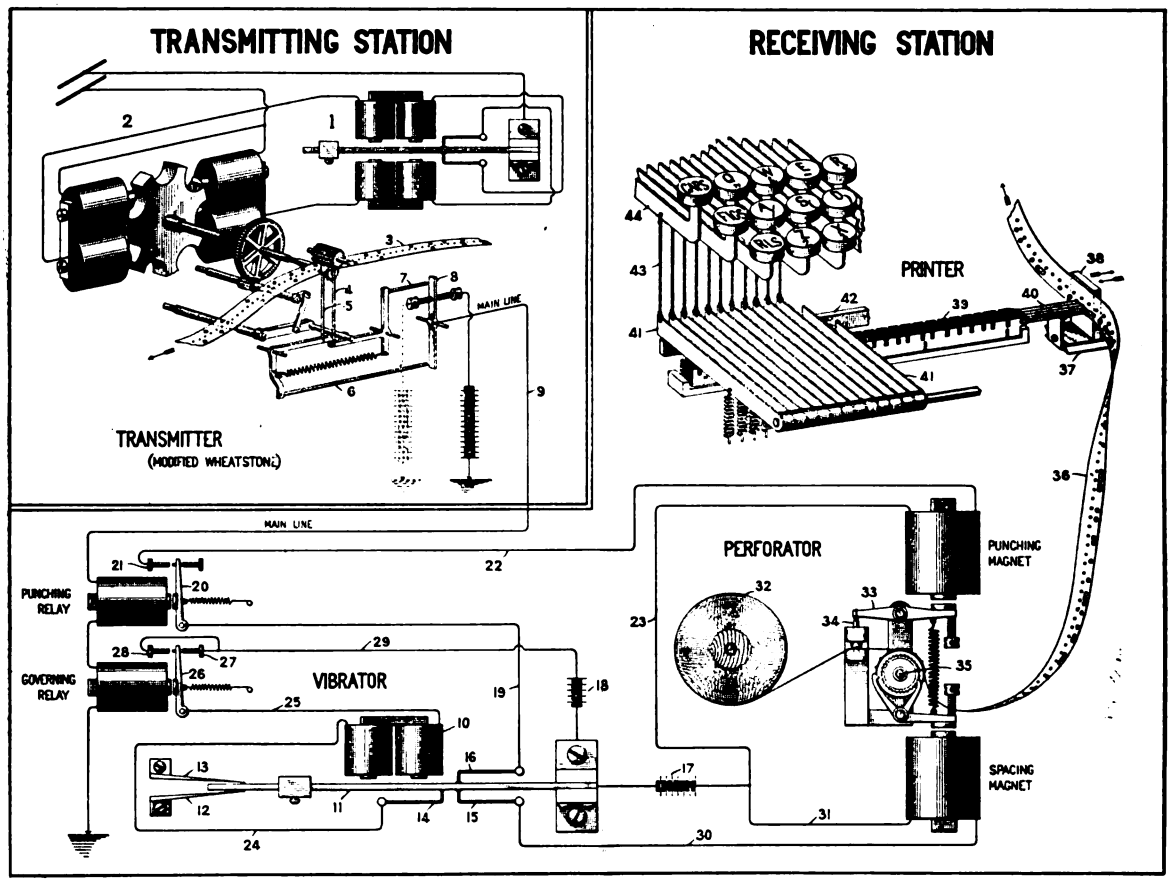
The submarine cable for the Commercial Cable Company between Waterville, Ireland, and Weston-Super-Mare, England, where the cable will be directly connected with London, was landed on May 6. A large number of people watched the shore end landed from the cable steamer Silvertown by the novel method of floating the cable on inflated rubber bags.

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Murray-Page Printing Telegraph.

At the January meeting of the American Institute of Electrical Engineers, Mr. William B. Van Size described the theory and principle of a page printing telegraph system invented by Mr. Donald Murray, an Australian journalist, who made arrangements with the Postal Telegraph-Cable Company, New York, for the exclusive telegraphic rights to his invention in the United States. The system is very ingenious, and is developed to a high degree of perfection. What it accomplishes may be stated briefly as follows: The messages are first transcribed on a typewriter, which perforates a tape; the tape is then passed through a transmitter similar in design to the Wheatstone transmitter and the messages are thus transmitted to the receiving station, where they are received in the form of a perforated tape. This is then passed into a typewriter, the keys of which are controlled by the perforations in the tape, and by operating the typewriter mechanically the messages are transcribed on the usual message blanks in Roman characters.



The telegraphic alphabet employed by Mr. Murray is of a special character, and is about forty per cent. shorter than the Morse alphabet. The keyboard perforator has for each character a separate movable lever each character occupies an unvarying linear space on the tape, and consists of five perforated and unperforated divisions of such space. The difference in the number and succession of these sub-divisions or perforations determines the characters. There are no spaces between successive letters or characters. Either makes and breaks, or reversals can be used in transmitting. It is to this fundamental fact—all letters of the same length—that the success of the system is due. Each letter occupies half an inch on the transmitting tape, and a similar length on the receiving tape. This gives a comparatively simple perforator operated by an ordinary typewriter keyboard, and there is no necessity for employing a complicated differential paper feed mechanism to provide for letters of varying length. In connection with the ordinary typewriter keyboard there is a group of ten punches, one punching magnet, and one spacing magnet, controlling a motor-driven escapement.

At the receiving station there is an electro-magnetic perforating device which accurately reproduces the transmitting tape by producing corresponding perforations and spaces. This received perforated tape passes from the receiving perforator into the typewriter operating device. This typewriter operating device consists of five longitudinally reciprocating bars or "combs," presenting five pointed terminals to a perforated plate or die. The perforated tape passes between the surface of the perforated plate and the pointed terminals of the bars. The pointed terminals of these bars register respectively with the five holes in the die. The tape is moved along between the die and the pointed ends of the bars step by step, the length of a letter or character at each step, say, one-half inch. When perforations in the tape coincide with the

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pointed ends of the bars and corresponding perforations in the plate and die, and the plate is moved toward the pointed ends of the bars, the bars are or may be separated into two groups; one group is moved longitudinally, corresponding with the unperforated sub-divisions of the tape, the other group project through the perforations in the tape and in the die, and are unmoved. Lying over the five bars or "combs" at right angles thereto are a series of thin metal strips. Each strip is mechanically connected with its individual key lever on the typewriter. The upper surface of the five bars first described is notched arbitrarily. These notches are caused to be aligned below any one of the strips under the control of the perforated tape and die; when any one of the strips drops into a groove a motor-driven cam engages it and produces a movement of the typewriter lever. The movement of the die and paper tape and of the typewriter key-lever is produced by motor-driven cams. It is evident that this mechanism will operate not only a typewriter but any keyboard machine such as a typesetting machine or linotype. The perforated receiving tape is therefore available for setting type automatically.

The accompanying diagram shows the general circuits and connections at both the transmitting and receiving stations.

Synchronism between the transmitting and receiving instruments is not necessary in this system. It is however essential to preserve unison between the arriving impulses in the main line and the local punching and spacing impulses at the receiving station. This is accomplished in the following manner:

The governing relay operates a circuit breaker, moving between two fixed contacts, and electrically connected to the same circuit terminal, so that the moving contact in going from one to the other operates to open the circuit during its time of transit only. This break in the local vibrator circuit takes place at the beginning and end of each main line signal, and as the main line signals arrive at a uniform rate and are of unit or multiple unit duration, the governing relay operates its break-point at uniform unit intervals or multiples of these intervals. In the same circuit in which this break-point operates there is also the break-point of the motor-magnet, which works on the buzzer principle. There are thus two break-points in the same circuit. If they open and close together, then full vibratory impulses flow through the motor magnet. If, on the other hand, the rate of vibration of the reed tends to accelerate, or the rate of the arriving current signals tends to lag, then the two breaks occur more or less alternately, and consequently less current gets through—the impulses are clipped—and the rate of vibration of the reed is reduced. In practice the receiving vibrator is set to go one or two per cent. faster than the rate of the arriving signals, and then the governing action of the two interfering break-points in the same circuit results in the establishment of a steady dynamic balance between the accelerating tendency of the reed and the retarding tendency of the arriving main line signals. By this arrangement the necessity for sending correcting impulses over the main line to secure synchronism is avoided, the correcting impulses being obtained locally with the co-operation of the main line signals themselves.

By varying the position of the movable weights upon the reeds at the transmitting and receiving stations the rate of vibration and the rate of transmission may be changed. To maintain unison it is necessary to have a considerable range of variation in the speed of this reed, such variation in speed to be attained in response to variation in the length of current impulses of uniform strength. This is accomplished by the aid of yielding or spring stops placed at each side of the reed.

By using multiple units of current and space in the formation of his alphabet, Mr. Murray has found it unnecessary to use reversals, five different time intervals combined with makes and breaks giving all the combinations required. The uniform time for each letter is divided into five equal units or sub-divisions, one or more of these five subdivisions being a current impulse, so that current impulses or spaces of one, two, three, four or five units duration are obtained. Thirty-two possible combinations are obtained in this manner, and by using two of these letter signals as prefixes to the others, capitals, figures and lower case letters, about eighty-seven characters in all may be transmitted. Makes and breaks or reversals may be used, therefore, adopting the system for use in quadruplex transmission. The alphabet, however, is only available for machine telegraphy, as it is practically impossible to observe five different time intervals with sufficient accuracy in manual transmission.

The system has been practically tested at different times on loops of varying lengths and on circuits between cities. It is now being run experimentally at 130 words a minute single, and as the system can be worked duplex this would give about 250 words a minute. In a test between New York and Chicago a speed of 102 words a minute was achieved.

In this connection it should be mentioned that any number of typewriting perforators may be operated independently to supply transmitting tape, as one typewriter is limited in its capacity to the ability of the individual operator to manipulate the keyboard. The same applies to the translating system at the receiving station, where the tape can be cut off at convenient lengths as it is received, and distributed among two or more typewriters for rapid transcription.

The Weston Electrical Instrument Company, the well-known manufacturers of voltmeters and ammeters, so long located at Nos. 114 to 120 William street, Newark, N. J., has removed to Waverly Park, Essex Co., N. J., where in future all correspondence should be addressed. The superior excellence of the Weston Standard goods long since found recognition and acceptance as indispensable factors in telegraphic practice.

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New Assistant Chief at Chicago.

Mr. Charles H. Finley, who succeeds Mr. George Dunning as assistant chief operator at Chicago, began his telegraphic career on the Chicago, Burlington and Quincy Railway twenty-one years ago, and has been connected with the Western Union Telegraph Company for nearly twenty years. He has risen steadily from the ranks to his present position, serving successively as operator, division chief and quad chief. Mr. Finley has to his credit as operator the record of handling five hundred ordinary



MR. CHARLES H. FINLEY.
Assistant Chief Operator, Western Union Telegraph Co., Chicago, Ill.

messages in nine hours between Chicago and St. Paul, at a time when the pen was considered mightier than the "mill." Mr. Finley's genial manner and pleasant disposition have won him hosts of friends in the Chicago office as well as in the many adjacent cities which he has visited in the capacity of repeater expert. He thoroughly understands his business, and his appointment as assistant chief operator was a wise one. Mr. Finley has for the past two years served as Sunday chief operator with the greatest satisfaction.

English Telegraph Deficit.

In the House of Commons, London, May 10, Mr. Henniker Heaton drew attention to the annual loss of £700,000 in the telegraph service, aggregating £8,300,000 (about $40,340,000) since the Government took over the lines, and asked how the Government proposed to remedy it.

The Chancellor of the Exchequer said the public were more eager for rapid communication than the revenue warranted. Unproductive extensions must be discouraged.

Mr. Henniker Heaton also asked if the Government was prepared to lease the telegraph lines to a private company. The Chancellor of the Exchequer did not reply.

The Telephone on Railroads.

Mr. E. F. Blendinger, superintendent of telegraph, Erie Railroad Company, New York, contributes the following communication to the Electrical Review of New York:

"Nearly every block station on the Erie Railroad Company's system is now equipped with its telephone, and the work of equipping all the stations is rapidly approaching completion.

"It is found that the telephone is a most useful adjunct to the block-signal system. Attached to the wall of the block tower, with its two-way spring switch ready to throw it into the bell circuit on either side, it is to the signalman a quick and reliable means of verifying signals. It is at his service at any and every moment, and there is no need for his waiting under compulsion, as is generally the case on the telegraph wire, until the dispatcher has given "O. K. and Complete" to a train order, or has raised some otherwise busy man up the road to get a train report. The value of the feeling of security with which it imbues the signalman is inestimable.

"As special training is not necessary for its use it opens to the company a large field from which to recruit their force of signalmen, and also places in their hands one more line of occupation in which to use faithful but unfortunate employees who have become crippled in the train service, and thus incapacitated for service requiring heavy physical exertion. Such men, by reason of their active connection with the train service, bring to their new duties an experience which makes them doubly valuable. In many instances the telegraph becomes superfluous after the installation of the telephone, by reason of the location of the block station at a point where the ability to place train orders would be of no value. While we have not reached the point attained by a certain western road which has applied the telephone to the dispatching of trains over a short but unusually busy section of track, still we feel that the possibilities are far from being realized.

"Considering the trifling amount of training necessary to develop a first-class telephone operator as compared with the one or two years' practice which the Morse operator must undergo before being able to handle even the lightest work, it would seem that good policy demands that the railroad manager shall look with favor upon the telephone, and welcome it as a companion, if not a substitute, to the telegraph in the field of formal communication."

Messengers for Train Service.

Hereafter passengers on all trains passing through the Union Station at Pittsburg, Pa., will have the benefit of a messenger service, the franchise for such action having been granted to the American District Telegraph Company. As a messenger boy will meet the arrival of every train entering the station, and receive telegraphic messages from passengers without extra compensation for conveyance to the Western Union Telegraph office, in whose interest the company will act, the convenience and desirability of this service will be manifest.

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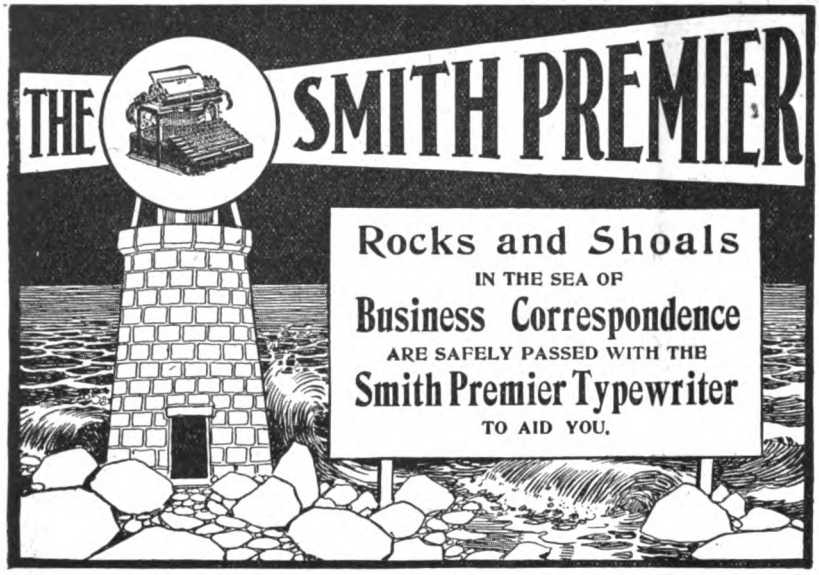
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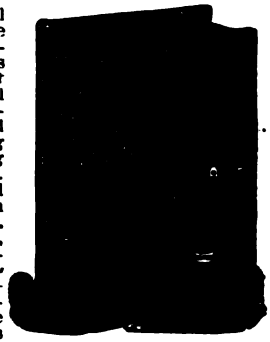
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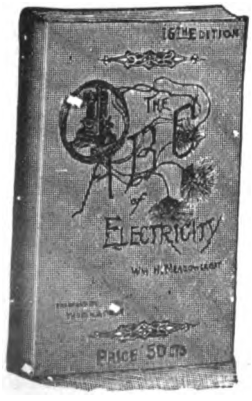
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James D. Reid.

The death of James Douglas Reid removes a conspicuous link binding the present with the past in the record of the telegraph. His activities in his chosen field began at a period simultaneous almost with the advent of telegraphy; his career closed at a time when the electric wire carried its message to every part of the world, under sea as well as over land. His was a wide span of life and the marvelous achievements in telegraphy he was permitted to witness, and in its earlier stages to take an active part in upbuilding, were to him always a source of satisfaction and inspiration, for he believed that the telegraph was an instrument in God's hand to bind closer together the nations of the world and by this means to promote "peace on earth, good will to men."

Much has been said about Mr. Reid at different times and elsewhere in these columns; it only remains now to raise the hand in final benediction. He has left behind him a memory fragrant with kindly deeds, a life above reproach, an example of Christian character that all may emulate.

Telegraphic Historical Society.

There is a movement on foot to consolidate The Telegraphic Historical Society of North America with the Old Time Telegraphers' Association. In the call for the eighth annual meeting of the former, which is to be held at the Astor House, New York, on May 22, the question of consolidation is distinctly brought to the attention of members in a letter signed by Charles A. Tinker, president; F. W. Jones, chairman board of directors, and J. B. Taltavall, secretary and treasurer. It is pointed out that because of a reduced and scattered membership making it difficult to secure the attendance of more than from five to ten members at any of its yearly meetings, and of the consequent growing lack of interest taken in the society on the part of its members, that the objects of the society, which are "the collection, preservation discussion and publication of information relating to the history, progress and development of the electric telegraph in North America," might better be carried out if it were consolidated with that of the Old Time Telegraphers' Association. It is understood that there has been secured by mail a practically unanimous expression from the Historical Society membership favoring the proposed consolidation, and now that the officers have received authority to act in the matter, the question will doubtless be fully considered at the meeting on May 22. It remains of course to be seen how the Old Timers will receive such a proposition, yet as a consolidation would manifestly be to the gain of each society, it is difficult to anticipate that any objection will be raised. For this union of interests, while settling a serious problem of existence in the one case, will at the same time serve to enrich the older society by a contribution of highly interesting and valuable assets in the shape of books, papers, portraits, various telegraphic devices, etc., now deposited with the Smithsonian Institution at Washington, D. C., and in the hands of the secretary, a collection which will, without doubt, be prized by the Old Timers.

Telegraph and Telephone Consolidation Again.

Like Cæsar's ghost, the bugaboo of a combination of telegraph and Bell telephone interests will not down. Directly one report is disposed of another appears. And the performance is on and off the stage with great regularity. The latest scheme of this sort reported is one purporting to be under negotiation by President John W. Mackay of the Postal Telegraph and Commercial Cable Companies, and Gov. W. Murray Crane, of Massachuetts. These are distinguished names to juggle with, and the amount of stock and bonds of the several companies to be consolidated presents in its magnitude an impressive total as it appears in tabulated form. The newspaper press of the country has with great unanimity found space to print the story, yet after all there is no truth whatever in the statement. A little more ingeniousness should be interwoven into the next tale of the kind. The old earmarks are becoming too familiar.

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Postal Telegraphy.

We note the frequent discussion pro and con, in the press, on the subject of postal telegraphy. Many arguments have been advanced before the Industrial Commission at Washington lately favoring Government absorption of the telegraphs. Members of the typographical union also appeared before that body in the interests of postal telegraphy, because its adoption by the Government would make more business for the union by reason of a consequent reduction in press rates, thus making it possible for country papers to be able to afford the receipt of telegraph press reports. Advocates of the other side of the question, however, state that press rates in this country are to-day lower than they are in Europe, where governmental control of the telegraph is the rule. The question of Government telegraphs is constantly being enlarged by having tacked to it savings bank schemes, the absorption of the telephone and even of railroad systems. Of all the articles that have appeared lately treating on the subject, the following is one of the best that has come under our observation:

Superficial resemblances deceive many persons, among whom seems to be Congressman Dick, of Ohio, who insists that the Government should operate the telegraph and telephone business of the country because it operates the post offices. It is not surprising that he also believes the Government should take care of the savings of the people through postal banks; neither he nor anyone else who advocates this expansion of the functions of government is willing to say what the Government should do with the savings after it has received them, except a few very bold persons who admit that even if the public debt were to be perpetual, which by American traditions it is not to be, the investment of savings in Government bonds would not earn what savings bank depositors are now getting, and they advocate paying a higher rate, which can only come out of the proceeds of taxation, and using the money for public improvements. This in only a circuitous way of borrowing vast sums of money, which must ultimately be repaid out of the proceeds of taxation, and spending the money on roads and canals and public buildings.

The postal service and the telegraph and telephone services are not alike. The postal service is a forwarding business, done over public roads by common carriers who exist primarily for the transportation of freight and passengers. The Government receives postal matter and engages these carriers to transport it to the point at which it distributes the matter. If the telegraph and telephone service were analogous the postal service could hardly be urged as a sound precedent for their absorption by the Government. The postal service is inordinately extravagant and the auditor for the Post Office Department has lately described its accounting system as inviting disaster. It does a very large part of its business for less than cost, and it pays the railroad companies upon a schedule of rates fixed twenty-five years ago, since which the rates of charge for every sort of service except that rendered to the Government have been very greatly reduced. The postal service is carried on at a loss, and we might reasonably infer, therefore, that the absorption of the telephone and telegraph business would merely increase the deficit to be met out of the proceeds of taxation.

The absorption of the telegraph and telephone service would involve the Government in the cost of construction and maintenance of lines, which is analogous to nothing in the postal service, but would be analogous to the Government's ownership and operation of the railways. The postal service is now extended over vast areas where it does not pay, and we are not disposed to complain of this; but if people are supplied with postal facilities at the expense of the rest of the nation, it is scarcely a reason for also supplying them with telegraphs and telephones on the same basis. The hope of getting something for less than it costs, and loading the deficit upon other people, is the leading reason for urging the extension of governmental functions, whether into savings banks or telegraph lines.

Municipal Electricians.

At the meeting on April 27 of the Executive Committee of the International Association of Municipal Electricians at Niagara Falls, N. Y., to make the necessary arrangements for the next convention, which is to be held at that point on September 2, 3, 4 in the Natural Food Company's Convention Hall, the following named gentlemen were present: M. W. Mead, Pittsburg, Pa.; F. C. Mason, Brooklyn, N. Y.; J. W. Aydon, Wilmington, Del.; M. G. Canfield, Grand Rapids, Mich.; W. Y. Ellett, Elmira, N. Y.; F. P. Foster, Corning, N. Y.; J. S. Craig, Toronto, Ont.; M. J. Donohue and W. G. Greene, Niagara Falls, N. Y.; Henry Smith and John Welsh, Buffalo, N. Y.; W. C. Banks and H. B. Kirkland, New York; H. C. Adams, Pawtucket, R. I.; together with H. D. Reynolds, of Buffalo, and Thomas G. Carpenter, Postal Telegraph-Cable Co., New York. The committee were cordially received by Mayor Butler, of Niagara Falls, and were assured by him that everything possible would be done to contribute to the success of the convention at the time of its meeting. Mr. Donohue, of Niagara Falls, also stated that an attractive program would be arranged for the entertainment of those who should attend. A large number of applications for membership were presented by President Mead and referred to the committee to report on at the next meeting.

It is particularly desired that the paper to be read before the convention shall embrace a wide range of subjects, and to this end Secretary F. P. Foster has sent out a circular to members requesting them to name topics. It is urged that replies should be submitted promptly in order that they may be passed upon and selections made by the Committee on Papers, consisting of Messrs. M. W. Mead, J. W. Aydon, Adam Bosch and F. C. Mason, who meet on June 1 for the purpose.

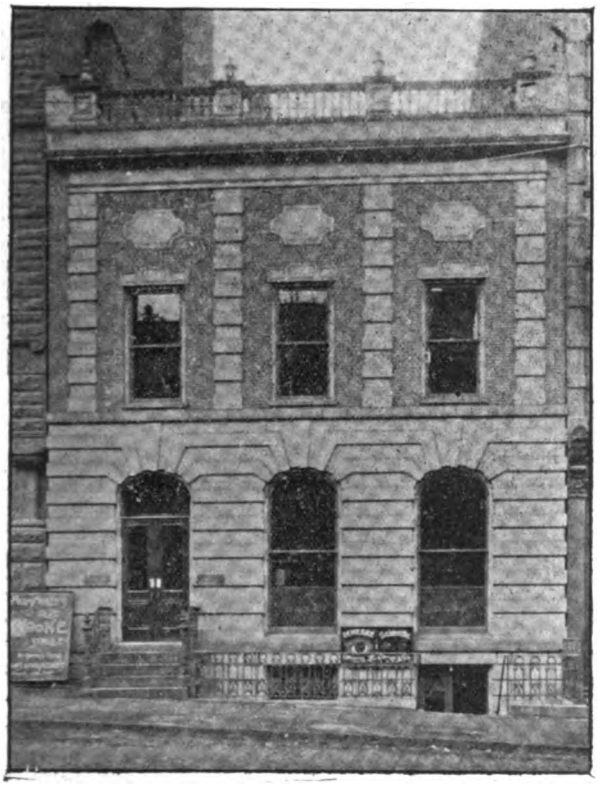
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A Bit of History.

The little two-story brick building, No. 21 Exchange street, Rochester, N. Y., the first structure built north of the Erie Canal in that city, erected in 1823-24 for the bank of Rochester, and which is ten years older than the city of Rochester itself, has just been razed to give place to the new bank building of the Genesee Trust Company.

The removal of this building calls to mind much of the early and eventful history of the Western Union Telegraph Company, for during the early sixties the structure was occupied as the general headquarters of that company, and within its walls the originating plan and scope of the present great corporation was largely determined. In a business of such a character, and even then with such



THE FIRST EXECUTIVE OFFICES OF THE WESTERN UNION TELEGRAPH COMPANY, AT ROCHESTER, NEW YORK.

wide-extended and growing ramifications, which at that early date gave promise of the vast possibilities since realized, it was natural that New York city should be sought as a proper headquarters for its conduct; hence it was that in 1866 the old building at Rochester, with its limited accommodations long since outgrown, was abandoned, and the company removed to the metropolis.

As the old building at Rochester has always had a certain sentiment attaching to it of peculiar interest to many telegraphers, a brief reference to the causes that led to the formation of the Western Union Company, whose first official home it was, and of those who were instrumental in bringing it about and who first assumed its management, will be of interest.

The telegraph lines in existence in the United States prior to 1857 were generally small, and each was under the control of a separate company. One ran from Boston to New York, another from New York to Buffalo, and a third from Buffalo west to Chicago. While there were many miles of telegraph in the country, the amount of business transacted yearly was small. Every company had a president and high officials, whose salaries consumed all profit. In the whole country there was only one line, the New York, Albany and Buffalo, which was paying a dividend.

In 1857 a meeting of the representatives of different telegraph companies was held in Washington to consider various measures for settling the difficulties which were ruining the business.

Hiram Sibley, of Rochester, N. Y., proposed the consolidation of all the different lines, but met with little encouragement. The difficulties were enormous and the enterprise was on a scale to frighten any ordinary man. But Hiram Sibley was no ordinary business man. He returned to Rochester with a determination to carry out the vast undertaking he had planned. In Rochester he obtained the assistance of many of its most prominent men. Isaac R. Elwood, George H. Mumford Isaac Butts and Don Alonzo Watson were among the men who foresaw the great future the plan promised.

The first step was the consolidation of the lines west of Buffalo, from which the company took its name of Western Union. In addition to the gentlemen mentioned who were associated with Mr. Sibley in the undertaking was Ezra Cornell, of Ithaca, father of the ex-governor, who was the prime manipulator of the Erie and Michigan Telegraph Company, which was really the basis of the Western Union. In after years a share of the original stock of that company was worth a small fortune. Henry S. Potter and Joseph Medbery, of Rochester; Jeptha H. Wade, of Cleveland; Anson Stager, of Ashtabula, and many of the prominent citizens of Rochester were afterwards added to the directors.

But the first days were ones of darkness and discouragement. Each little line had at its head officials who naturally looked with disfavor on a plan which would decrease their salaries and place them in subordinate positions. Often a line necessary as a connecting link would demand extortionate terms, and only be brought to reason by threats of duplication. That the infant company lived through such trials was due to the executive ability, energy and, above all, the grim determination never to give up, of Hiram Sibley and the men associated with him. He put his own capital and induced his friends to put theirs into the scheme, and he made every man who stood by him rich. For a long time, however, the company did not seem to be a success and Mr. Sibley had to meet with many a reproach from friends whom he had induced to join him. They thought they were ruined while, in reality, he was making fortunes for them.

The offices of the company at that time were located in the little building as above stated. The

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secretary and treasurer's office occupied the second story front room.

All the financial and executive business of the company at that time was transacted in that one room by Isaac R. Elwood, the first secretary and treasurer, assisted by F. G. Ritso, bookkeeper, and W. B. Levet, clerk. Emery H. Falls was office boy. Up to this time Henry S. Potter was president. Subsequently Hiram Sibley, the second president of the company, occupied one of the back rooms as an office, and later the two back rooms were thrown into one and used for a directors' room. The directors' room had a rear door opening into a yard, back of which was a separate building fronting on another street which was used by the storekeeper for supplies.

One of the present high officials of the Western Union—Mr. John B. Van Every—entered the company's service in these offices. Mr. Van Every was in the auditor's department, which was on the next floor, in a room with front and rear windows. The check department also was in this room, and the assistant general superintendent had a desk near one of the front windows. Finally prosperity came with a rush. The stock went higher and higher, and so great were the profits that for a long time it was the custom of the directors to meet and pay a liberal cash dividend and then declare a stock dividend, often doubling the amount of outstanding stock. Excitement ran high in those days, and Rochester has never seen such times since. The efforts and strategy employed to secure stock when it was increasing in value every hour, and fabulous values were attributed to it, will never be forgotten by those who saw it from within. When it was hinted or surmised that a dividend was to be declared, investors and speculators were wild to possess it and the transfer book was kept in constant demand for days before it was closed. Many of the most valuable parcels of real estate in Rochester were purchased with this stock at greatly inflated values.

At that time there was no Atlantic cable in operation, so Mr. Sibley determined to make an overland connection with Europe, running up the western coast of Canada, through Alaska, under Behring Strait and then across the vast wilderness of Siberia. With characteristic energy he went to Russia, spent the greater portion of three years at the court of St. Petersburg, and finally obtained the necessary concessions for building a line through Alaska, then Russian territory, and across Siberia and Russia. The work was rapidly pushed forward. The poles had been erected from the northwestern border of the United States almost to Alaska, wires had been strung for many miles, and the undertaking was nearing success, when one day a message came across the second Atlantic cable, and the Russian extension enterprise was dead. The long overland route could not compete with the direct submarine communication.

Before the Russian extension project was abandoned, the overland line to the Pacific coast had been built, special stock being subscribed for the purpose, for the work was accomplished under very serious difficulties. That line, built under almost insurmountable obstacles, and the forerunner of the Pacific railroad proved to be a bonanza both for the contractor and for the stockholder. A good deal of the present wealth of Rochester may be traced to the investments therein made, while Cornell University at Ithaca, Sibley Hall in Rochester, Wade Park in Cleveland, and Creighton College in Omaha, each bearing the name of its generous donor, are to be traced to the large fortunes made from this venture. All honor to these men for their generosity to their fellow citizens! All of them are dead, but by these acts they still speak.

One of the last companies to enter the Western Union and help make it the success it proved was the New York, Albany and Buffalo Telegraph Co., which for years controlled the franchises of the New York Central and Hudson River Railroad Company and maintained its headquarters at Utica. It surrendered to the Western Union on January 1, 1864. A. Cole Cheney presided over its affairs in Rochester for many years.

The directors of the Western Union, elected in July, 1864, were: Hiram Sibley, president; J. H. Wade, vice-president; O. H. Palmer, secretary and treasurer; Anson Stager, D. A. Watson, George H. Mumford, Isaac Butts, Henry R. Selden, Samuel Wilder, Ezra Cornell, Thomas R. Walker, John Butterfield, Henry R. Shillingford, Perry McD. Collins, and Sanford E. Church. Edward Chapman was auditor, Rochester, N. Y.; William Hunter, purchasing agent and superintendent of supplies and tariffs, Cleveland, Ohio; A. H. Watson, storekeeper, Rochester, N. Y. The superintendents at the beginning of 1866 were: Anson Stager, general superintendent, Cleveland, Ohio; George W. Balch, assistant general superintendent, Rochester, N. Y.; Luther G. Tillotson (Erie Railway), New York; David Brooks, Philadelphia, Pa.; T. B. A. David, Pittsburg, Pa.; D. H. Fitch, Pit Hole, Pa.; Wm. C. Buell, Troy, N. Y.; Sidney B. Gifford, Syracuse, N. Y.; Edward P. Wright, Cleveland, Ohio; George B. Hicks (acting), Cincinnati, Ohio; John F. Wallick, Indianapolis, Ind.; Robert C. Rankin, Chicago, Ill.; George T. Williams, St. Louis, Mo.; Edward Creighton, Omaha, Neb.

On January 3 and 4, 1866, the superintendents held a series of meetings in the directors' room in Rochester, and all the superintendents were present except Creighton, who was on the plains and beyond reach. This was before the completion of any of the Pacific railroads. Col. R. C. Clowry, then in the military service, with headquarters at St. Louis, attended the meetings. General Stager presided, and Mr. G. W. Balch was secretary.

Of the fifteen directors of January, 1866, Samuel Wilder, of Rochester, is the sole survivor, and he has not been connected with the company for many years. Of the superintendents, only three remain in the service, and seven are dead.

Upon the retirement of Hiram Sibley, in 1866, Jeptha H. Wade was unanimously elected president. The most notable achievements during Mr. Wade's short administration were the acquisition of the lines of the United States Telegraph Company (of which William Orton was president and

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the late James D. Reid secretary) and of the American Telegraph Company. Mr. Wade resigned in July, 1867, and was succeeded as president by William Orton.

The consolidated companies, consisting of the American and the Southwestern Telegraph Companies, afterwards consolidated with the Western Union, which brought into the Western Union service General T. T. Eckert, Dr. Norvin Green, A. B. Chandler, John Van Horne, C. A. Tinker, D. H. Bates and others.

Those now alive in New York who were transferred from Rochester to this city in 1866 are J. B. Van Every, vice-president and auditor of the Western Union Telegraph Company; Emory H. Wells, of the same company; A. H. Watson, now in other business, and George W. Balch, retired.

It will be of interest to note that there have been but six presidents of the Western Union Telegraph Company. Besides Messrs. Potter, Sibley, Wade and Orton above mentioned, Dr. Norvin Green and General Thomas T. Eckert have also held the office, the latter being the present incumbent.

How Newspaper Men Overcome Difficulties.

Because of his early experience as the first agent of The Associated Press in Colorado, George E. Lawton, or "Old Farmer Lawton," as he is more familiarly known, now the night manager of the Western Union Telegraph office at Denver, Col., is possessed of a fund of anecdote, humorous and pathetic, regarding newspaper men, in the telling of which he has an individuality quite his own.

"In my opinion," remarked the "farmer," "the most difficult feat ever performed by a Colorado newspaper man was by Ralph Meeker in 1879. Ralph was then editing a weekly paper at Greeley and received word of the Meeker massacre in which his father, who was Indian agent, and the other help around the agency had been slain by the Utes, and Ralph's mother and sister had been carried away in captivity by the Indians.

"Ralph lost no time in joining the rescuing party which had been sent out, but it was ten days or two weeks before they succeeded in rescuing the women, who were nearer dead than alive from exposure and the awful ordeal they had passed through, having been eye witnesses to the massacre at the post, where the aged father and husband had been so brutally butchered. To add to their sufferings, the women had to be transported over two hundred miles on horseback from the place of rescue to Alamosa, then the nearest railroad station, the trip being a test to human endurance, there being no roads and the mountain passes and rugged canons being almost impassable for horses in single file.

"However, the party finally reached Alamosa one evening about dusk, and while the good people of that town began to administer to the wants of Mrs. Meeker and her daughter, others endeavored to induce Ralph to go to bed and secure some much needed rest after his ten days in the saddle with scarcely any sleep, but Ralph heard that the train left for Denver at 6 o'clock in the morning. Limping over to the telegraph office, he wired his friend Fred Skiff, managing editor of the old Denver Tribune, asking him to see Major Hooper, of the Rio Grande, and arrange transportation of the party to Denver.

"This Mr. Skiff attended to, and then requested Ralph to relate the story of the massacre and rescue to some one who would telegraph it to the paper. To this Ralph replied it was too horrible to be talked about, but that he himself would write it.

"The story, which he covered in three and a half columns and which I received from the wire—ah, well do I remember how my blood curdled while handling it. The operator at Alamosa who sent it to me said that Ralph only weakened or showed signs of great mental distress but twice in the four hours he was writing the horrible details. The first was when he reached that portion describing the sickening account of the death of his beloved father, even to the scalping process, which was done before life left the old gentleman's body.

"Then the great, big tears rolled down Ralph's cheeks and blinded him, but after a few moments' struggle against nature he proceeded until he got down to describing the horrible sufferings of his mother and sister during their captivity. Then he lost his self-control, and throwing his pencil at the stove as though it was an imaginary Ute, he arose and paced the floor of the little depot like a wild animal in a cage, and it was some time before he could control himself sufficiently to complete the first authentic account given to the world of that most horrible affair.

"It was a most inhuman trick that Walter Davis, of the Denver Post, played upon Frank White, of the Times. Walt used to herd sheep down in New Mexico and his animal instinct still causes him to leave plenty of daylight between himself and a cactus bush. But his cold-blooded nature prevented him from warning poor Frank from taking possession of one end of the tie table that was surrounded by a cactus bed. But Frank showed his mettle and never flinched until he had written about 1,200 words for his paper.

"Then it was plain to be seen that Frank was really in more misery than the poor wretch he had been watching burn at the stake, and it took about all the mustard plasters he could procure in the little town of Limon to draw the cruel stickers out through the top of his head. You know they work through and come out opposite from where they enter. I have since thought it was lucky for Frank that he is a man of short stature or he might be wearing sticking plasters in his hat yet.

"Joseph D. Barry, who died in Denver the past winter, probably took as many chances as the next fellow without getting caught. When Governor Waite sent the militia to Trinidad, Barry was with them when the train halted till daylight at a small station a few miles this side of there for fear of having a head end collision with a stick or two of dynamite; Barry wanted to get something to his paper in Denver. As there was no night operator at the station, and the day man lived in Trinidad, Barry turned to the good-natured conductor and asked him how many years a fellow would get for breaking into a Rio Grande depot. The conductor

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smiled and said: 'None, unless somebody saw you.' Then Barry asked the conductor to please turn his head just a minute, and the next minute Barry's big foot went through the window with a crash, followed by an operator we had on the train, and that office was opened for business and continued to transact business until the other correspondents that were on the train asleep got badly scooped.

"Fifteen or twenty years ago when John C. Martin, at present news editor of the Rocky Mountain News, was city editor of the St. Louis Globe Democrat, he had a wonderfully smooth way of getting around little difficulties and securing a piece of news, and while he is a few years older now, he still retains that knack. Do you know it was only a short time ago he came to me and borrowed a pair of linemen's climbing spurs in order to send a reporter up a forty-foot telephone pole adjoining a three-story building where a certain meeting was being held and from which reporters had been barred?

"Did he secure the information? Did he? Well, I should say he did, and if it was not for the fear of being accused of being an accessory to that diabolical scheme by ladies that composed that political meeting, that he was so desirous of having correctly reported, I might give you the date it was published."

The "Teloptoscope."

Philip K. Stern, a mechanical and electrical engineer says that he has perfected and now has patents pending for an apparatus for the transmission of optical images in colors. The device will be known as the "teloptoscope."

The principle upon which the thing works is this: The transmitter is focused upon the optical image to be sent. The luminous rays are transformed into electric impulses and sent to the receiving end over an ordinary telegraph circuit. One additional wire is necessary, however, for manipulating the receiving apparatus. The electric currents are again employed at the distant end to vary the intensity of the ray of light which is thrown onto the receiving instrument. The variations of the beam of light at the receiving station correspond to the light and shadow at the transmitting station. The picture so received will be in one color, but by an arrangement of three colored screens the apparatus will be made to reproduce the proper tints. If it is desired to photograph the view reproduced all that is necessary is the placing of a dry plate on the receiver. By this means photographs may be taken in any part of the world of objects in any other part.

Working at High Pressure.

Just how great are the powers of endurance of the army of brokers, cashiers, clerks and messengers who are running the machinery of the great Wall street speculation remains to be seen. Employees and telegraph operators have been working for weeks from early until late at night. As records for daily transactions have been smashed, the burden of their duties has grown until it has become necessary to labor well into the following morning.

New York downtown hotels and restaurants have had a great boom from the heavy Stock Exchange business. When employees are forced to work past the dinner hour their firms allow them from $1 to $2 for the meal. Houses that deal liberally with their clerks give from $3 to $5 for overtime up to midnight.

The recent boom has also appreciably increased the business of the telegraph companies. The wires have been hot with orders, instructions and questions from all parts of the country. Extra men have been put on and the main offices are running at high tension.

The Telegraph Service in the South African Campaign.

In the course of Lord Roberts' report on the services of the various units of the forces acting in the South African military operations, a meed of praise is awarded to the telegraph service establishment under the supervision of Lieut-Col. R. Hippisley, R. E. After stating that "no portion of the army has had more work of greater responsibility than this branch," Lord Roberts proceeds:

"With a personnel of twenty-five officers and one thousand two hundred and twenty one operators, linemen, etc. (of whom four officers and one hundred and fifty three men have died or been invalided), nearly two and a half millions of messages have been dealt with during the past thirteen months, some of them containing as many as four thousand words. The telegraph systems taken over, repaired, and maintained exceed 3,300 miles in length, with over 9,000 miles of wire. In addition, 959 miles of air line have been erected and 1,145 miles of cable laid. Great credit is also due for the quick way repairs to the lines, so frequently interrupted by the Boers have been carried out. This is a most dangerous service, as there is always a chance that the enemy may be lying in wait near the break, but there has been throughout the most unhesitating promptitude in its performance. The young officers in charge of cable carts have also often had perilous work to perform when winding back their wire, alone or with a very small escort."

National Standardizing Bureau for the United States.

The bill establishing a National Standardization Bureau passed both Houses of Congress. The functions of the bureau will consist in the custody of the standards; the comparison of the standards used in scientific investigations, engineering, manufacturing, commerce and educational institutions with the standards adopted or recognized by the Government; the construction, when necessary, of standards, their multiples and sub-divisions; the testing and calibration of standard measuring apparatus; the solution of problems which arise in connection with standards; the determination of physical constants and the properties of materials, when such data are of great importance to scientific or manufacturing interests and are not to be obtained of sufficient accuracy elsewhere.

You can't afford to be without TELEGRAPH AGE.

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The Funeral Services of James D. Reid.

The funeral services of the late James D. Reid, whose death was announced in our previous issue, held on April 30 at the Fifth Avenue Baptist Church, New York, of which he had been an attendant, were of a character well suited to the bright, cheerful and optimistic temperament of the deceased; their whole tenor being free from all funereal aspect were doubtless just such as Mr. Reid himself would have chosen. As the Rev. Dr. Henry M. Sanders, who delivered the chief address, well said in the course of his excellent remarks, abounding in many beautiful and happy expresssions, it was not "good by" to Mr. Reid, but rather "good morning," for he had but just begun to live.

The attendance at the church was large, and a spacious section was reserved for the telegraph fraternity. It was a representative gathering in the best sense, for it embraced all departments of the telegraph service from the highest officials down through all of the grades, brought thither by a desire to render a last tribute of respect and love universally felt for a beloved and elder friend—the "Father of the Telegraph," indeed, whose pathetic dying words, "Give all the telegraph boys and girls my love," had awakened a responsive chord in every heart. The telegraph representatives were the first to pass up the aisle to take a last look at the deceased, whose casket was placed amid a bed of flowers in front of the pulpit.

The floral offerings were numerous and beautiful. The telegraph fraternity sent a magnificent standard of cut flowers several feet in heighth, which was given a prominent position at the front corner of the pulpit platform. A beautiful wreath of oak leaves was the gift of the Magnetic Club, while within the coffin was placed some lovely flowers sent by Miss Nellie B. Hope, daughter of H. C. Hope, of St. Paul, Minn.

In the absence of Dr. Robert S. MacArthur, the pastor of the church, who was ill, the assistant pastor, Rev. S. W. Richardson, opened the services with prayer, followed by the reading of the Scriptures, the selection being the thirteenth chapter of First Corinthians, Mr. Reid's favorite. After this came a contralto solo, and then Mr. Walter C. Burton spoke, paying a simple, earnest and eloquent tribute to Mr. Reid from the viewpoint of the telegraphers. He said in part:

"The wonderful century which has just closed gave many remarkable inventions to mankind, but it gave none that surpasses in marvelous power and usefulness, the one with which the life of our departed friend was so closely identified. Almost from the time of its initial discovery surrounded by the skeptical and the scoffing, all through the years down to the present time, when, amid the applause of men, it has come into such universal use and necessity that it may truly be said to be the right hand of commerce. Mr. Reid became associated with the electric telegraph in 1845, in its earliest days of practical utility, and a warm and beautiful friendship soon sprang up between him and Professor Morse. That never to be forgotten first message, 'What hath God wrought,' seemed to take hold upon Mr. Reid with wonderful and subtle force, and his whole life was inspired with the desire and purpose that in his own life God might be the ruling force; and of a truth in him was wrought one of God's most noble works, a man loyal and true to every high ideal.

"To the younger generation of men and women of the telegraph who were never privileged to look upon the face of Professor Morse, it has seemed for many years as though we saw him, the nobility of his character, the simplicity of his mind, and the aspirations of his heart revealed to us in the person of his life-long friend and associate, James Douglas Reid. I remember with peculiar pleasure the joy and satisfaction with which Mr. Reid expressed his pleasure that the name of Professor Morse stood high up among the list of American immortals chosen for the Hall of Fame.

"It is not given to many men to be a pioneer in the development of one of the most efficient, useful, and far-reaching agencies for the advancement of civilization and the progress of the human race, but to Mr. Reid does this great honor fittingly belong. He was the early friend and associate of Morse, he was the first telegraph superintendent in this country, and published the first electrical journal in the world. As the editor of the Journal of the Telegraph he advocated and was chiefly instrumental in organizing the Telegraphers' Mutual Benefit Association, the first co-operative, fraternal insurance association in this country.

"If the dream of philosophers and poets is ever to be realized in the dawning of a day when all men shall be brothers and peace shall rule o'er all the earth,

'Till the war drum throbbed no longer, and the battle flags were furled,
In the parliament of man the federation of the world,'

I believe it will be due in large measure to the influence of the electric telegraph, which has been singing these many years the song of universal peace, and has brought the nations of the earth so close together that the barriers of mountain, sea and valley have been overcome, and with the annihilation of natural barriers have come better human understandings. Mr. Reid seems to have grasped in unusual degree these characteristic forces of the telegraph, for what is true of it in a general sense was true of him in an individual sense, and all his life he not only preached the Brotherhood of Man, but what is far better, his heart went out in sympathy and love to all mankind.

"His was a unique place in the hearts of telegraphers. He was familiarly known for many years as the 'Father of the Telegraph,' not, I think, because he was so early associated with it and was the friend of Professor Morse; not because he was the first telegraph superintendent; not because he published the first electrical journal, but rather, I think, because of his large and generous measure of helpful human sympathy, which took hold upon the hearts of telegraphers everywhere. And as the years fell softly upon him he grew to be to us as a father, so sure were we of the love of his heart and the desire of his life to help us and stimulate us to high and

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noble ideals. The relationship had in it much of the tenderness of a father to his children, and how true this was is fittingly and tenderly demonstrated by almost his last words. As his illness progressed toward its close, the cloud was, for a brief interval, graciously lifted from his mind, and he uttered a father's benediction, 'Give all the telegraph boys and girls my love.' Our heart's sympathy goes out to his sorrowing family. Our prayers and tears are mingled with their own, for we, too, are conscious of a most grievous bereavement.

"Men have different standards by which the success of a man's life is determined, but to my mind there can be no better standard, no truer test than the love and esteem of thousands of one's fellows. Judged by this standard, Mr. Reid's life was a glorious success. Better far to be cut off in early manhood, mourned by thousands, than to totter to one's last resting place at four score years and ten, without the falling of a tear; but better still, and a signal mark of the Father's loving favor, to fall asleep as did our well loved friend, at the ripe age of 82, mourned by every person who ever knew him, and enshrined in the hearts of tens of thousands of his children, the men and women of the telegraph.

'Now the laborer's task is o'er,
Now the battle day is past,
Now upon the farther shore,
Lands the voyager at last.
Father, in Thy gracious keeping
Leave we now Thy servant sleeping.'"

Mr. Burton's remarks were followed by an address by the Rev. Dr. Sanders, already referred to. At its conclusion another musical selection was rendered, after which the exercises were brought to a close by prayer by Dr. Sanders.

The telegraph profession was represented by the following: Gen. Thomas T. Eckert, Thomas F. Clark, J. B. VanEvery, Jas. Merrihew, W. C. Humstone, Chas. A. Tinker, William Holmes, Wm. J. Dealy, W. C. Burton, John Rathbone, Wm. L. Ives, T. P. Scully, J. K. Calvert, W. F. Lewis, P. Collins, Robert Morton, R. Ferguson, R. J. Murphy, A. A. Offutt, A. M. Guest, H. A. Sauer, T. A. Brooks, J. H. Montgomery, J. McParlan, M. H. Kerner, D. J. Willis, C. A. Hicks, W. J. Austin, D. W. McAneeny, J. W. Connelly, B. J. Crowley, F. A. Stumm, R. G. Page, E. H. Falls, W. D. Schramm, H. H. Ward, G. W. E. Atkins, Miss F. L. Daily, Miss K. Donovan, Miss Anna Brown, Mrs. M. E. Randolph, Miss Halsey, John Brant and wife, G. A. Stimson, W. H. Baker, C. P. Bruch, Isaac Smith, Geo. Clapperton, M. M. Davis, S. A. Coleman, J. F. Cleverdon, F. C. McKiernan, Edward Reynolds, J. Wintrup and J. A. Chapman, Philadelphia, Pa.; A. Weller, Milwaukee, Wis.; A. P. Eckert, M. J. O'Leary, D. R. Downer, G. A. Hamilton, Wm. Marshall, Wm. Maver, Jr., J. McKenzie, J. A. Henneberry, J. M. Phalen, Dr. W. J. Davis, L. F. Dowling, J. B. Taltavall, J. R. Beard. Among others present were Mr. and Mrs. John D. Rockefeller and Mrs. William Rockefeller.

Following the funeral services in New York brief services were held in Rochester, N. Y., Mr. Reid's old home, and whither his remains had been taken for interment, on the afternoon of May 1, at the home of Mrs. Wells Baley, 22 James street. Rev. Dr. A. H. Strong, of the Rochester Theological Seminary, officiated. The burial was in the family plot in Mt. Hope Cemetery in that city.

A TRIBUTE TO JAMES D. REID.

Dear friend, thou art not dead, nor lost to us
Thy loving sympathy. Nor changed to us
The human hearted man we loved. We know,
For life, did God immortal youth bestow.

By faith we learn the truth, before unknown,
That life and love can never lose their own!
Thou art removed; thy form we cannot see,
We only know that heaven is glad for thee.

When light dies out of creeds, the fact survives;
None doubt the Christ shown forth in holy lives,
The charm of Grace revealed in smile and tone,
Transforms a life to beauty not its own.

Thy life shone forth with love's unconscious ease;
Thy spirit held all gracious courtesies.
Thou had'st a sense of things most pure and true,
From love Divine thy soul rich fragrance drew.

Dost thou not know our feet with weary tread,
Are hastening to the goal where thou hast led?
And when we reach at last the pearly gate,
Will thy dear welcome our glad souls await?

O winds of heaven, and sweet translucent streams,
O songs of birds that voice all nature's dreams,
O stars that mark the pathways of the night,
O radiant moon that shines with borrowed light,

O sun with matchless splendors all thine own,
O glorious sunsets—trembling from the throne
Of joy and gladness—glowing rainbow dyed;
Make these deep thoughts within our hearts abide,—
"The dear Lord's best interpreters, are humble human souls,
The gospel of a life like his, is more than books or scrolls."

—Mrs. M. E. Randolph.

History in Scraps.

Mr. N. M. Booth, of Evansville, Ind., the nestor of all telegraphers in Indiana, has just completed a scrap book that will be of decided interest to the members of his profession. He will send it as a contribution to The Telegraphic Historical Society of North America, the next meeting of which convenes in New York, May 22. The book contains much of interest in the history of the telegraph in Indiana and Kentucky. A story of the building of the first line in Kentucky, and how many bright people of that time were dubious of its results, is included in the book. There are personal reminiscences of some of the old timers in Indiana and Kentucky, together with portraits of men in the newspaper work and well-known in telegraphic circles. Altogether it is one of the most interesting bits of work that Mr. Booth has ever undertaken.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

ST. LOUIS, MO., WESTERN UNION.

Mr. Jacob Benedict returned to work April 18 after an illness of two weeks.

Mr. Milo Orr, of Ft. Scott, Kan., on his way to Little Rock, Ark., was the guest of Mr. George J. Goehringer April 16.

Miss Mamie McLaughlin and Mr. William Carey returned from Hot Springs, Ark., where they were helping out, April 24.

Departures: Mr. Frank Gorosky for Galveston, Tex., and Mr. Raymond Alger for Springfield, Mo.

Mr. A. M. Trauernicht, agent for the Iron Mountain & Southern Railway Company at Middlebrook, Mo., was a visitor April 19.

Miss Mamie Flaherty, a sister of Miss Agnes Flaherty of the Wheatstone, and Mr. T. F. Toohey were married April 23.

Miss Annie Tynan, the popular Planter's House operator, and Mr. James Coakley were married April 24. They will make their home in the Indian Territory.

Miss Nellie Frazier is enjoying a vacation at Harman, Col.

The Fair grounds race track Western Union office was opened recently with Chas. W. Jost in charge, John J. Murphy describing the races, George J. Goehringer and T. E. Gilbert operators, Walter Jost, messenger, and Walter L. Roberts and John T. Brophil as race correspondents.

The promptness with which wires can be rescued from the wreck and debris consequent upon a fire and an impromptu telegraph office established, was recently illustrated by Assistant Wire Chief L. N. Boone and Foreman of Linemen James W. Jones, assisted by a half dozen linemen, immediately after the fire at the National League Baseball Park, St. Louis. Hardly had the flames subsided when several of the wires were dragged from among the fallen timbers, some boards secured, several box relays attached, and a board erected with the following roughly lettered sign thereon: "Temporary office of the Western Union Telegraph Company." A game was being played at the time of the fire, and operators Jos. B. Holle, Wm. Throe, Al. Hawley, Mike O'Neil and W. H. Johnson escaped without injury, saving all the instruments.

ST. LOUIS, MO., POSTAL.

Mr. F. E. Ryan and Miss Maria Toholska were married April 18.

Arrivals: Miss Matilda Genevieve Seeger, from the Western Union; Miss Lydia Heideman, from the Cotton Exchange; H. C. Hornady, J. A. Latture, R. H. Caldwell, W. B. Powell, G. E. Evans and W. A. Boyer.

W. G. Talum returns after a two weeks' absence.

KANSAS CITY, MO., WESTERN UNION.

Our local electrician, Mr. W. M. Wood, is again at his post of duty after a month's sojourn in Houston, Tex., at which place he assisted Mr. J. C. Barclay in installing a dynamo plant and paraphernalia of a thoroughly up-to-date telegraph office.

Messrs. Harry and Bert Hall have the profound sympathy of all in the loss of their father, whose death occurred on April 26.

A new branch office has been opened at the Baltimore Hotel, with Miss Nannie Clapper as manager and Mr. J. S. Woods night operator.

Mr. J. F. Roper is confined at his home, having suffered paralysis of his entire right side. We are glad to learn he is improving and has excellent chances for ultimate recovery.

Mrs. Sarah F. Duncan and Mrs. E. A. Dyer are again with us after several years' absence, and the remark goes round, "It seems more like the Kansas City office now."

Other arrivals are Emma H. Stewart, Robert McGregor, G. E. Whitaker, Richard Wagstaff and Claude Reed.

Mr. "Nick" Burke, well known in telegraph circles, is just out of the City Hospital, having recovered from a severe sickness. J. M. Barnes, a familiar figure among the fraternity, was a recent caller.

CHICAGO, ILL., WESTERN UNION.

Mr. George E. Dunning, formerly assistant day chief operator, accepts the position of night chief operator, succeeding C. L. Clevenberg, resigned. The night boys are rejoicing at the return of Mr. Dunning, who is well liked by all.

Mr. C. L. Clevenberg, night chief operator, resigned to go with Schwarz, Dupee & Co., Chicago, as manager of their leased line business. We are sure Mr. Clevenberg will prove a valuable aid to the firm. His record is first class and his qualifications are unexcelled, he being a thorough electrician, also possessing executive ability. Mr. Clevenberg's refined, genial and kindly personality is missed by all, and we feel as though a friend has been taken away.

Tuesday evening, April 31, the boys of the night

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force and some of the day force congregated around Mr. Clevenberg's desk, while Wire Chief Springer made a presentation speech in well chosen words and handed to Mr. Clevenberg a beautiful diamond ring purchased by the boys. Mr. Clevenberg made a nice little speech of acceptance, and was then given three rousing cheers.

Mr. O. G. Fisher has been appointed to succeed Mr. Finley as assistant on the loops with Mr. Goslin. Mr. Fisher's appointment was a judicious one, as he is well versed in the secrets of quad tangles, etc. He is a modest and courteous gentleman, and for five years worked as wire chief in Cleveland, Ohio.

Mr. Oscar L. Carson was given a trial on the west board nights, and he displayed such marked ability that the night chief operator appointed him wire chief at the west board on the all night trick. Mr. Carson is a promising and energetic young man, and will doubtless become a first class wire chief.

Mr. Charles F. Fuhrman, appointed assistant wire chief west board, was formerly assistant to James Cummins, of the St. Paul division. Mr. Fuhrman is another good selection, as he has not only proved himself a gilt edge operator when working a wire, but proved a valuable aid while acting assistant division chief, and has quietly acquainted himself with a deep knowledge of wire work and the intricate workings of instruments.

Mr. Chares J. White, appointed assistant to Mr. Cummins, of the St. Paul division, and who succeeded Mr. Fuhrman, has shown his ability as a first class telegrapher while on the first St. Louis wire. He is another good selection and promises to become a valuable official.

Messrs. Otto Enking and Chas. Fuhrman made a thirty minute run to Maywood, Ill., a couple of Sundays ago on a tandem. Maywood is twelve miles distant, and considering the not over good roads, the run was a clever one. They called on F. E. Abbot, who was injured a short time ago, and found that gentleman much improved.

Mr. Evan Jones, of the signal department, has the sympathy of all in the death of his sister.

Mr. John Kemp, west board wire chief, has returned after a siege with the grip.

R. W. Stimers has resigned to accept a position in the West.

Visitors: F. A. Mohr, manager at Davenport, Iowa, who came on to attend Frank Riordan's funeral; Mrs. McCullough and Mrs. Kate Murray, of Milwauke, and Miss Hart, of Springfield, Ill.

NORFOLK, VA., POSTAL.

Few changes have occurred at this point for some time, and items of interest are scarce.

Assistant Manager Skirrow, of New York, paid a short visit to this office recently.

Mr. W. V. Hill of Richmond, but more recently of New York, has accepted the position of night chief operator made vacant by the resignation of Mr. E. L. Wood.

Mr. H. B. Smith has resigned to accept a place with the Southern railway.

Mr. George M. Barrett, of this office, is now located at New York.

BOSTON, MASS., WESTERN UNION.

The annual meeting of the Telegraphers' Purchasing and Savings Association of this city, was held in Young's Hotel, April 28. A dividend of 18 per cent. for the previous six months was declared. The capital stock was increased from $5,625 to $10,000. The following officers were elected for the ensuing year: President, F. T. Viles; vice-president, F. E. Wolfe; treasurer, A. V. Losea; secretary, P. T. Haggerty. Executive committee: C. W. Henderson, C. H. Morse, J. H. Driscoll, A. W. Austin, C. G. Pond and J. T. Hart.

Mr. T. R. Finan, assistant wire chief, is filling in the duties of the late Chief Frank Stevens, with George Cunningham as assistant, temporarily.

Mr. Harry Waters has joined the cable force with Manager Deveraux at Duxbury.

Many changes and promotions have occurred in the personnel of the force of late. Some of the fortunate ones to be advanced are J. F. Logan, T. W. Cummings, J. H. Hannon, J. C. Smith, A. E. Bussell, P. J. Farrell and O. S. Chambers.

Mr. Lou Flynn recently made a hit as end man in minstrelsy with the Asquam Club.

Frank Stevens, for the past twenty years chief operator of the Western Union at Boston, died at his home in Chelsea, Mass., April 28. His health began failing about three months previous to his demise, but he kept to his duties until March 27, when he was compelled, by a gradual weakening of the system, to retire to his home. His death was due to heart failure and a complication. Mr. Stevens was of a genial and companionable disposition, beloved by all, and will be greatly missed. He was born near Concord, N. H., in 1843, and was an operator during the Civil War for the American Telegraph Company. After the consolidation with the Western Union he was transferred to the Boston office in 1866. He was day report operator on the famous old New York and New England Associated Press circuit No. 4 for many years. At the time of his death he was a member of the Old Time Telegraphers' Association, one of the executive committee of the Telegraphers' Purchasing and Savings Association, a charter member and vice-president of the Electric Club and a life member of the Columbian Lodge, F. and A. M. of Boston. His funeral was held from his residence at Chelsea on Thursday, May 2, and was largely attended by the fraternity of Boston. Some of those who attended were C. W. Henderson, manager of the Western Union; J. A. Dougher, traffic chief; F. T. Viles, inspector of branches; All Night Chief J. B. Colson, R. L. Stevens, O. L. Barron, M. C. Harrington, Cashier J. H. Wentworth and G. MacBride.

INDIANAPOLIS, IND., WESTERN UNION.

Arrivals: W. C. Rogge, P. F. Ryan, J. P. Freeman.

Departures: H. L. Duckett, B. Ronsheim.

Mr. Arthur Crane, recently of check force, has been assigned to the Atlas Engine Works branch office.

Mr. James Kennedy, night operator at Dennison Hotel, has been transferred to the main office.

Mr. Patsy Barrett officiates at Washington Park during baseball games.

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NEW YORK, POSTAL.

The New Century keys recently introduced here have made quite a sensation, and some wonderful records for speed on them are reported. Messrs. Price and Murphy, days, and Driscoll, nights, the stars of the first Boston piece work circuit, are using the new key exclusively, and speak highly of it. Mr. Price sent 297 messages to Boston on April 23 in 254 minutes, a trifle over 70 messages per hour, for 4¼ consecutive hours, a notable record.

The newspaper offices say the new keys are in favor. Mr. Joseph F. Ahearn, the speedy sender of the Journal office, has taken one to Lakewood, N. J., for use in reporting the golf tournaments there. It looks as if this key is a good thing for operators, especially those on heavy circuits.

Mr. J. J. Hyer, for a long time at the Cotton Exchange office, has been transferred to the Western division, main office, and Mr. T. E. Doyle from the Western division has been assigned to Mr. Hyer's place at the Cotton Exchange.

Resignations: Messrs. Charles Goldstein and J. J. Horner. The former accepts a broker's position in New York, and the latter goes to Philadelphia.

R. M. Sinclair left for Cape Cod, May 11, to accept a position with the French Cable Company at that point.

G. T. Neece, who recently arrived, and who was formerly with The Associated Press at Helena, Mont., has been assigned to the Buffalo bonus wire.

Mr. Joseph A. McNulty, Eastern wire chief, and Miss Eleanor J. Walthery, of Paramus, N. J., were married on April 21. The best wishes of the whole force go with them.

PHILADELPHIA, PA., POSTAL.

With house hunting and wedding preparations, Mr. Jay A. Thomas is a very busy man. The happy event is soon to take place.

After considerable delay and difficulty the Postal office at Pottsville, Pa., was finally opened to the public, with Mr. C. W. Stager, an experienced and popular man, in charge.

Mr. Wm. L. Sharpley, train dispatcher of the New York, Philadelphia and Norfolk Railroad, from Cape Charles, Va., favored this office with a visit.

Another distinguished visitor was Mr. F. W. Jones, of New York, electrical engineer of the company.

The latest report from our friend Wm. V. Madden, formerly of the first New York local, locates him in Denver, Col., and doing well.

After spending many months in the West, Mr. J. B. Cleaver has returned to his home at Bethlehem, Pa., at the urgent request of his parents. Mr. Cleaver, shortly thereafter, came to this office, where he is now working extra.

BALTIMORE, MD., WESTERN UNION.

Mr. W. M. Mallonee has been transferred from the American District Telegraph Company to be manager of office in Calvert Building, vice Alex. Moore, transferred to the managership of office in dry goods district; Herman C. Emrich from the Postal, and H. E. Galloway from Greenville, S. C., have been appointed day operators in the main office.

Mr. George Kelly has resigned to accept a position with a broker.

Recent visitors, former members of the force: John Church, Washington, D. C., and "Farmer" Pratt, Singerly, Md.

NEWPORT, R. I.

"Ned" Doyen, of telegraph fame, and always noted for being a good operator, who has been working in Washington the past winter, arrived here May 1 to resume his old position as operator for Ullman Bros., New York stock brokers, who have opened their office here for the summer.

ASSOCIATED PRESS NOTES.

Mr. W. O. Coffin has resigned from, and Mr. W. B. MacMahon has been appointed to, the New York bureau.

At the Hartford, Conn., bureau Mr. W. La Jeunnesse has resigned, and Mr. W. A. Adams has been appointed.

The resignations of Messrs. J. F. Sturm and W. T. Shields, of the Albany bureau, are announced, together with the appointment there of W. A. Andrews.

DES MOINES, IOWA.

Mr. R. W. Skeels has been appointed manager of the Postal Telegraph-Cable Company at Grinnell, Iowa, vice W. C. Burd. Mr. Skeels is a fine operator and renders satisfactory service. He says he likes the AGE.

NEW YORK, WESTERN UNION.

Mr. W. Walker, formerly of the Commercial News department, and now a telegraph reporter on the floor of the New York Stock Exchange, was married to Miss Nellie Dunn, of Clark's department, on May 1. Many telegraph friends were present. Professor Callahan, of this office, furnished the music at the wedding reception.

Mr. Albert E. Sink, manager of the operating department, has returned after a brief vacation.

Mr. Joseph L. Edwards, of the Philadelphia

STATE OF OHIO, CITY OF TOLEDO, } ss.
LUCAS COUNTY, }

FRANK J. CHENEY makes oath that he is senior partner of the firm of F. J. CHENEY & Co., doing busines in the City of Toledo, County and State aforesaid, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of CATARRH that cannot be cured by the use of HALL'S CATARRH CURE.

FRANK J. CHENEY.

Sworn to before me and subscribed in my presence, this 6th day of December, A. D., 1886.

{SEAL} A. W. GLEASON,
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printer circuit, who has been ill with grip for a month, has returned to work.

Mr. Perry F. Irish, who has been confined to his room for three months, expects to return to work in a couple of weeks.

Mr. Fred. Catlin, of the quad department, went away May 7 for a vacation of six weeks.

Mr. Fred. O. Nourse, general traffic chief, who has not been well for a long time, left May 10 for a two months' sojourn at his old home at Littleton, N. H., where it is believed he may fully regain his health. Mr. W. E. Rath, traffic chief of the eastern division, will act for Mr. Nourse during his absence.

Mr. Thomas M. Brennan, assistant manager, with his family, took a few days' trip to Washington, D. C., on pleasure bent.

Mr. Harry S. Pearce, who has worked the Charleston, S. C., wire for some time, has been promoted to assistant traffic chief, and Mr. A. A. Lopez, who has worked the Detroit wire, has been advanced to the quadruplex department.

Dr. Charles A. Brooks, a well-known old timer in the West, now of this office, was married in Brooklyn, N. Y., April 29, to Helen C., daughter of Henry Preston, of New Haven, Conn.

Mr, Charles H. H. Cottrell, so well known in associated press circles, and as a member of the Red Cross Society, has once more joined our ranks at this office. Mr. Cottrell is one of the gilt-edged operators of the country.

Mr. P. T. Brannigan has been appointed manager of a new office opened May 1 at 231 West 116th street.

Mr. J. T. Murphy, of Armour & Co.'s Duane street office, leaves for a trip to Chicago, on June 1. On his return trip he will visit the Pan-American Exposition at Buffalo.

Room H4, fourth floor, which has been occupied for a long time by "Andy" Gillman as a carpenter shop, will hereafter be used by the Telegraphers' Mutual Benefit Association. This move was made necessary by the demand for space on the second floor.

Miss Nellie T. Calver has been absent for ten days on account of illness.

Mr. J. F. Paddock is quite sick at home.

Mr. Oscar McCullen, late of the Western Union, Richmond, Va., and now manager for the Baltimore and Washington districts, of Whitehead Hoag & Co., of Newark, N. J., was a recent caller.

Since May 1 Messrs. J. G. Hoffman, J. H. McNamara, H. M. Herrington, H. E. Stokes, P. A. McGriff, J. P. Duckworth, and B. C. Welp, have been added to the waiting list. J. J. Phelan and Thomas Nolan have returned from the South. Mr. C. J. Rath and Miss R. Alexander have been added to the regular force, and Mr. E. Gregorovius made junior operator.

Apropos of the death of Mr. J. D. Reid, a small pocket diary showing the signatures of thirteen who subscribed, October 20, 1877, $250 to clean and repair the Morse statue in Central Park was shown around the office. The names are: William Orton, James D. Reid, J. H. Wade, Henry Bentley, Anson Stager, Tracy R. Edson, Cyrus W. Field, Samuel J. Tilden, Wilson G. Hunt, Marshall O. Roberts, Moses Taylor, Andrew Carnegie, and Peter Cooper, all of whom are dead with the exception of Mr. Carnegie. It would be hard to find men more prominent in the financial world at that time than many of those named. All of the original messages received by Professor Morse at the time of the testimonial given at the Academy of Music, June 11, 1871, were shown to your correspondent recently. They belong to Mr. Frank D. Giles, assistant night manager.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

The 1901 Alexander word-counter, $3.00. Others, $2.00 up. Typewriter repairs at reduced price to operators. Machines bought, sold and rented. New typewriter, just out, $25.00; send for catalogue. Wall & Butler, 57 Dey street, New York. (Adv.)

DENVER, COL., WESTERN UNION.

Arrivals: Mr. Raleigh, from the cable office in New York, on straight night trick; Mr. Darling, from Vancouver, B. C.; Mr. Fipps, from Texas; Mr. Johans, of Helena, Mont.; Mr. Spencer, from the Postal, Dallas, Tex.; Mr. McDonald, from the Postal, Denver; Mr. Corum, from a broker in this city; Miss Noel, from a broker's office, Colorado Springs; Mr. Killick, from the Western Union, Kansas City, Mo.; Mr. House, from Albuquerque, N. M.

Miss Davy officiated as Colonel Brooks' stenographer during the absence of Miss Jeanie McCreary called to Ohio on account of sickness in her family. Mr. Henry Mandles has returned to work after a two months' tour in the East. Mrs. Hilliker, who has been very ill for the past four months, called at the office a few days ago. She expects soon to be able to resume her position in this office.

Mr. Harry Thomas has gone to Las Vegas, N. M., relieving Manager Birdsall temporarily, who is in the East on a vacation.

Mr. L. A. Cristler left for Silverton, to act as manager and take a much-needed rest. It is thought the change from city to country life will be very beneficial to his health. Mr. Harry Madison has been absent a few days on account of a slight attack of rheumatism. Mr. Wm. Dunaway, who has been spending a month with his father in California, returned to work May 1. He reports a fine time and expects soon to permanently locate out there. Mr. James Masden has been appointed official baseball reporter for the season. Mr. Fred. Wessel, who went to Clayton, N. M., during the Black Jack hanging, made a reputation as a code operator, handling over twenty-five thousand words during the short time he was there.

Our night chief, "Old Farmer" Lawton, has had so many offers to go on the reporter staff of the Denver papers since his recent story published all over the country of "Old Time Newspaper Correspond-

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ents," which appeared in last issue of the AGE, has to work overtime to answer them. We would not be surprised to hear of the "Farmer" competing with J. Whitcomb Riley, in the field of poetry.

Mr. J. E. Jenkins, assistant chief operator, left for El Paso, May 5, to assist in the removal of the office at that point.

Mr. Alexander, who has been on the sick list for the past three months, returned to work on the 8th inst.

SEATTLE, WASH., WESTERN UNION.

The personnel of this office is as follows: Eugene Hockett, manager; Chas. Baxter, chief operator; P. A. Cook, assistant chief operator; H. R. Sanderson, night chief operator; W. R. Barker, all night chief. Operators: J. L. O'Rourke, S. T. Gloor, F. L. Dyas, J. F. Holder, L. Wheeler, C. Nutter, C. T. Bell, Jas. A. Weeks, E. C. Warren, John McDonnell, J. F. Johnson, C. C. Willis, Miss Youmans. Clerical force: Geo. H. Hedrick, cashier; M. F. Power, transfer clerk; F. H. Woodward, delivery clerk; Geo. Brown, assistant delivery clerk; C. M. Jones, counter clerk; R. H. Moulton, night clerk; Andrew Pawlesek, copy clerk; Miss Helena Peterson, telephone clerk. Bookkeepers: Misses Reba Brown, Edythe Brown, and Matilda Brown. Check boys: A. Vopni and Laird Wray.

Sick list: E. C. Warren (late manager at Parkersburg, W. Va.), relapse of malaria fever; Geo. H. Hedrick, cashier, on a vacation in California for his health.

PORTLAND, ORE., POSTAL.

The Postal Company recently moved their office to the new Failing Building, corner of Washington and Third streets. The entire office is on one floor, the operating room being directly back of the receiving department. A skylight extending the whole length of the operating room insures plenty of natural light, even on the darkest days.

Six Lundell motor generators were installed, giving potentials of 40, 130 and 375 volts. The primary current is 500 volts direct current, furnished by the Portland General Electric Company. These machines displace 2,500 cells of gravity battery. The new quarters are fitted with the latest Postal standard equipment.

The personnel follows: Wm. Hearn, manager; John Annand, chief operator; B. S. Durkee, assistant chief; L. Connell, night chief; C. A. Cook, all night chief; D. E. Ross, James J. Collins, C. Gundlach, R. J. Thomas, J. S. Urquhart and J. B. Stillwell, operators; R. L. Brackett, bookkeeper; F. Cromwell and J. Walsh, counter clerks; J. Erickson, lineman.

Odds and Ends.

[Short, pithy items bearing on the telegraph are solicited for this column.—EDITOR.]

A man who had the "grip" last winter says the first symptoms he noticed was while receivng a cable from a place in Russia, named Owuschuhooryemoffski.

"Hello, old fellow; I saw the chief operator calling you down on your average slip!"

"Naw, he wasn't calling me down, he was calling me up. He said that if I didn't show more business handled that I'd better get a berth on the new Arctic expedition, for it would be too cold for me around here!"

A press special describing in detail the finding of the body of a man who had been drowned in a beer vat of a western brewery, has completely reformed an eastern operator who received it. He says: "When a man can't tell any more whether he is getting triple X extra or embalming fluid, it's time to quit." And he has been sober four weeks.

What is now wanted is to know just what did happen. For, two weeks ago, a traveling man wired his wife like this: "Don't open the letter I mailed you to-day; return to me unopened. Answer." Telegraph circles have been on their metal ever since in anticipation of handling that "answer," but it hasn't come, and now they ask if that woman should be blamed if she could not restrain her curiosity.

The woman who wanted her telegram sent sealed in an envelope has been heard of, so has the man who forbade any of the telegraph employees to read his messages; but the latest is the fellow who insisted that if he paid 1 cent extra for a revenue stamp that the compaany must send it with his message, because he had received several telegrams that the revenue had been paid by the sender and they came to him without any stamp on.

Railway Telegraph Superintendents.

As the time approaches for the holding of the convention of the Railway Telegraph Superintendents, the twentieth of the series, which meets at Buffalo, N. Y., on June 19-21, indications multiply that the assemblage will not only be a numerous one, but it is expected that many ladies will attend. A number of excellent papers will be read, a reference to which was made in a previous issue.

The growth of this association, both in membership and in the larger interest with which it is regarded by the great body of railroad telegraph superintendents, is very gratifying to those who have long been indentified with it and who have labored with great patience and steadfastness of purpose to bring it to the enviable position it now occupies. It cannot be too strongly urged upon those superintendents, and others identified with the railroad telegraph service, who have not yet joined its ranks, of the advantages to be derived from such community of interests. The coming in personal contact at least once a year with their fellow superintendents at the annual convention, where, by a widening of acquaintance, exchange of thought, advancement of new ideas and methods of practice, much is to be gained of a character that will enable any superintendent to so conduct his office as to promote the standard of the service rendered. Every railroad company in the United States should be in close representation with the Association of Railway Telegraph Superintendents.

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Business Notices.

On the inside of the back cover will be seen an advertisement of Messrs. Foote, Pierson & Co., 82-84 Fulton street, New York, which refers to the new Twentieth Century telegraph key, an illustrated article on which appeared in the May 1 issue of this paper. The key appears to be giving satisfaction everywhere it has been used, and many are enthusiastic over it. The testimonials printed in the advertisement will be read with especial interest, inasmuch as they were received from busy operators, thoroughly practical men, who fully understand and appreciate the points of improvement in the device.

In the model hotel or apartment house of to-day, telephones are quite as necessary as the elevators and mail chutes. After many unfavorable experiences, architects, engineers and contractors have gradually discarded the cheap and inefficient telephone apparatus and are choosing more for quality and durability than price. For these reasons the new Hotel Essex, at the corner of Fifty-sixth street and Madison avenue, New York, is equipped with Ericsson telephones and switchboard, which give quick communication from every suite and hall to the office, and place the management within easy reach of every patron. The room telephones are all of the hand microtelephone pattern, and instead of being a disfigurement to the wall, they serve as an ornament to the finely finished suites. Each of these is fitted with a flexible cord of sufficient length to enable the patron to call the office, or to answer a call if desired, without rising from the couch or bed. When through using, the releasing of a lever in the handle makes and breaks all necessary connections and it is not necessary to replace on a hook, as in ordinary telephones. The utility and compactness of the hand microtelephone has made it a great favorite, and it bids fair to soon take the place of the once popular nickel desk set, and in many cases replace the wall instrument as well. In operation, the office is called by simply pressing the contact in the handle of the hand microtelephone, which act throws the drop at the switchboard. The operator connects in the usual manner, answering the call, and if desired calls some other suite and enables the two to converse. The call to the suite is made by a small musical gong placed near the ceiling, which, while loud enough to call a person, is not harsh enough to disturb one. The wall telephone for use in the halls is neat, compact, and takes small space. It is fitted with the standard Ericsson receiver and transmitter. In operation it is used in the usual way, the act of taking the receiver from the hook, sending the call for the operator in the office. With both instruments, when the line is released, the operator is at once notified and quickly disconnects. The switchboard, positive and rapid in operation, is of the finest mechanical construction, durable, handsomely finished and while occupying very little space compared to its capacity, is of a peculiar design which distinguishes it from ordinary boards. The system is operated by centralized batteries and is so arranged that, when desired, a motor generator can be thrown into circuit for calling. This system is manufactured by The Ericsson Telephone Co., 296 Broadway, New York.

Ill At His Post.

A telegraph operator at a railroad station in New Jersey became suddenly ill while on duty a few days ago, and, according to the report made to the authorities, "fell in a faint." This occurred at a point where the operator's duty includes setting the semaphore by which the locomotive engineers may know whether the track ahead is clear. It gives them the mute order to "Go ahead; all clear!" or "Stop! There is something in your way!" Fortunately for the passengers on the trains which pass that point at frequent intervals, the operator had set the block when he was overcome, and trains were stopped and disaster was averted.

A signal tower in charge of one man, who may become ill or incapaciated at any moment, is not a perfect safeguard, and the consideration of what might have resulted from the illness of the operator on the New Jersey line should serve as a warning and a stimulus to improvement.

Morse Club Dinner.

The Morse Club will hold its annual dinner in commemoration of the transmission of the first telegraph message on May 24 at the Sturtevant House, New York. As this is strictly a telegraphers' club, it is expected that there will be a large family reunion on this occasion. It is said that a special feature in the entertainment is being arranged as a little surprise to enhance the pleasure of the affair.

A cordial invitation is extended to every telegrapher to attend this meeting, tickets for which will be issued in a few days and can be obtained from any member of the club, or on application to M. H. Kerner, secretary, 195 Broadway.

A subscription to TELEGRAPH AGE is one of the best investments a progressive telegrapher can make; it keeps him thoroughly posted.

Readers of the TELEGRAPH AGE are referred to the advertisement of the Montauk Cable Company on page two of the front cover. (Adv.)

The Modern Service of Commercial and Railway Telegraphy (8th Edition, revised and enlarged), by J. P. Abernethy. The theory and practice, including railway station and express service. Arranged in questions and answers. 425 pages, 40 illustrations. Price $2.00, expressage prepaid. Address John B. Taltavall, The Telegraph Age, 253 Broadway New York.

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A large assortment, in all kinds of plain and fancy handles. Price, 10 cents to $1.00. Also music and writing stylus for the Mimeograph and other duplicating devices.

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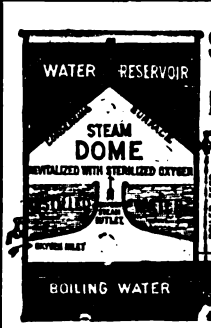
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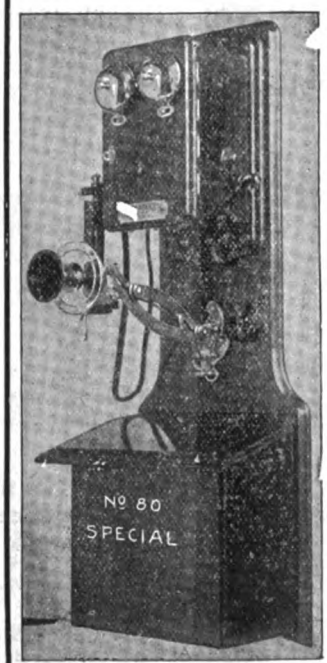
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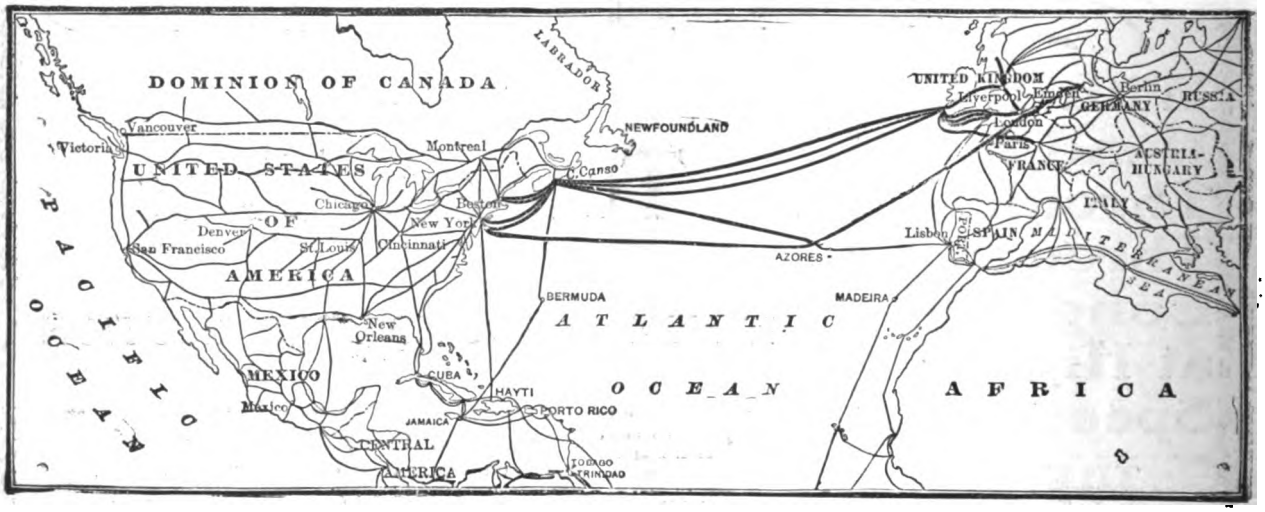
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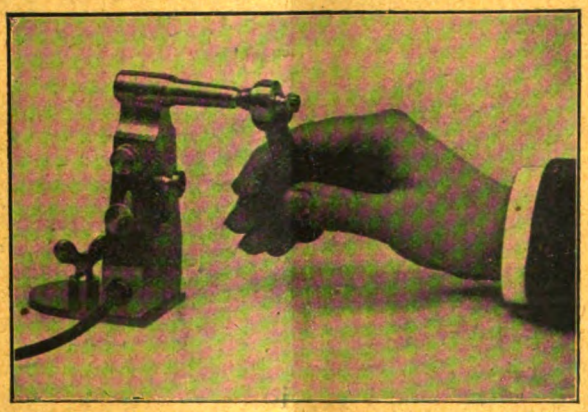
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New York World,
Telegraph Dept.,
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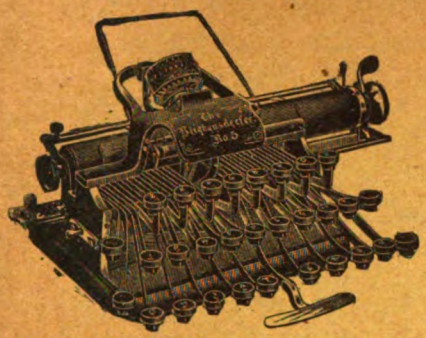
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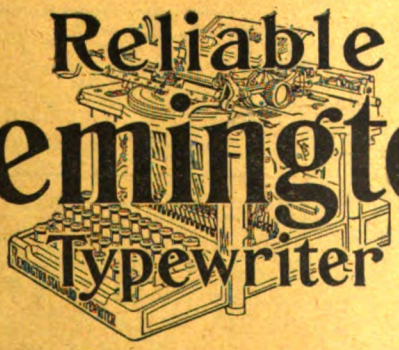
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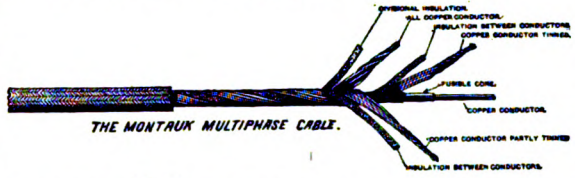
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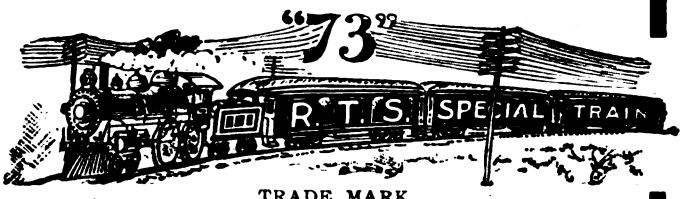
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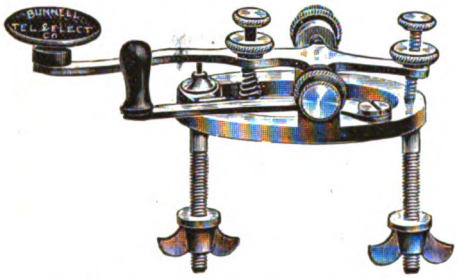
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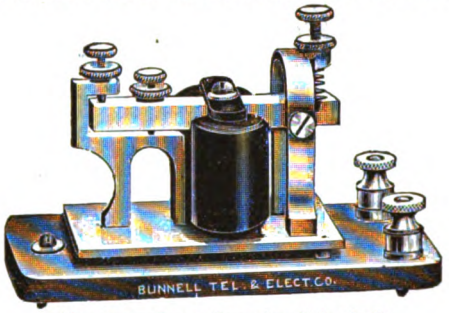
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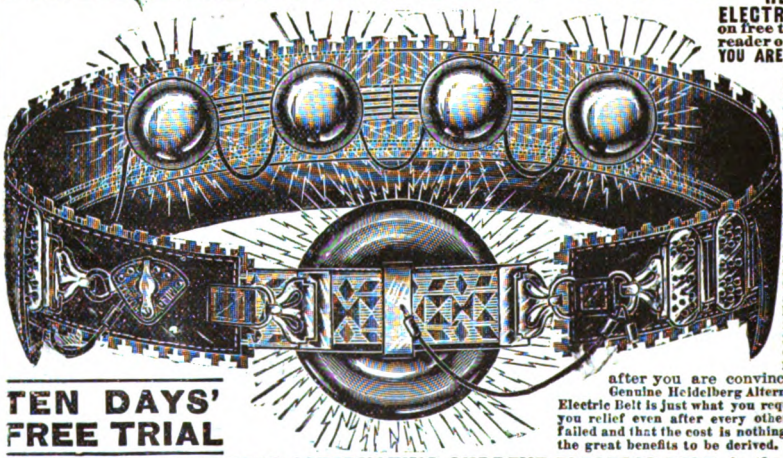
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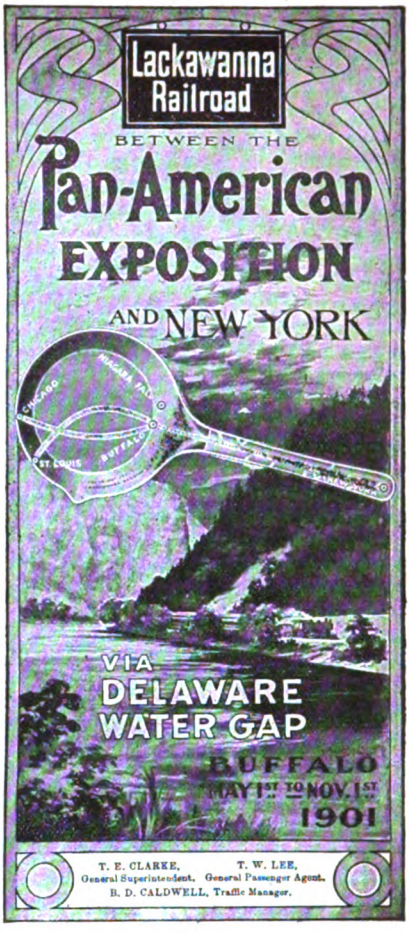


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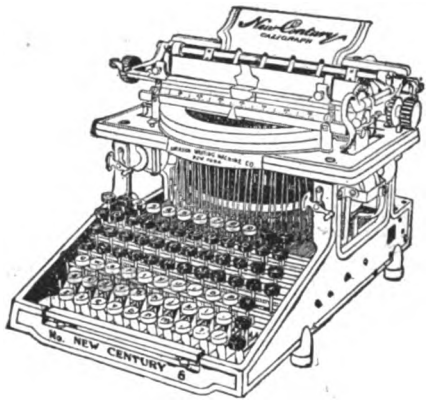
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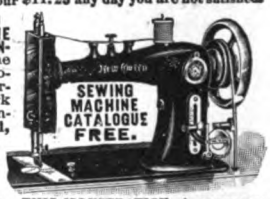
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THE TELEGRAPH AGE.

No. 11. NEW YORK, JUNE 1, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

Something New in the Magneto Line.

Everyone is so familiar with the old term "magneto current" that when the subject is mentioned the mind immediately conjures up an innumerable lot of toy-like apparatus more or less elementary in principle, which are, with a few exceptions, quite useless except for experimental purposes and the performance of comparatively feeble and indifferent work; yet from the beginning it has been universally admitted that such currents, in their way, are capable of producing most powerful effects.

Until quite recently the current-producing strength of such devices has been almost totally wasted through lack of a means which would insure the necessary time for its proper development in the wire.

To make this point clear let us take an ordinary telephone bell ringer for illustration. It consists of a coil of wire, or armature, which is caused to revolve rapidly between the poles of a permanent steel magnet by means of a crank turned by hand. In other words, it is simply a little dynamo which generates an alternating current of great electromotive force, but insignificant in quantity for the following reason: When one end of the coil of wire on the armature touches the brush connected to the external wire at the moment it has completed just half of a revolution it sends out, say, a positive impulse, while the next half revolution making similar contact with the opposite end of the coil discharges a negative impulse. Now, if these separate impulses could be stopped suddenly for a brief interval of time on each half revolution, the value of the current developed in the line would follow ohms law; that is to say, $E \div R = C$, because it would then have time to fully develop. But such is not the case with the ordinary magneto apparatus. When the armature is revolved rapidly the two impulses crowd each other into and out of the conductor so rapidly that neither has time to accomplish more than a fractional part of its work. If an electro-magnet were placed in an alternating current electric light conductor where the revolutions are exceedingly high, practically no magnetism at all would be developed, but if the speed be greatly reduced a feeble amount of magnetism would at once be noticed in the core of the instrument. It is because of the comparatively slow revolutions of the armature in the telephone ringer that the apparatus is enabled to perform its allotted duty at all.

On account of this drawback to the development of the most useful phase of a magneto current, the practical application of the latter has been confined to a somewhat limited field, especially when employed for signaling purposes, which latter are at best mere "buzzers" on comparatively short circuits.

Quite recently, however, there has been a wonderful advance made in the development and control of magneto generator currents, an improvement over the old way so great that it bids fair to open an unlimited field of usefulness. The writer has thoroughly investigated the matter and seen the erstwhile youth suddenly develop to the full strength of manhood and perform feats heretofore requiring the aid of powerful batteries. Now, all of this has been accomplished by means of a device owned and patented by the Magneto Electric Company, New York, which causes the armature of an ordinary magneto generator to stop suddenly on each half revolution and discharge an impulse of great electromotive force into the conductor. The half revolutions are controlled by an ordinary Morse telegraph key. Depressing the key releases the armature for half a turn, causing, say, a positive impulse to go out, while releasing the key completes the revolution and delivers a negative impulse. By inserting polarized relays in the circuit it will be seen that a perfect means of operating polarized instruments on single line circuits is secured, something that has never been heretofore satisfactorily accomplished, and all without the aid of a cell of main line battery.

With the crude experimental apparatus at hand the writer has telegraphed with ease through 800 miles of wire, each end of the circuit being grounded. Signals were also readable through 10,000 ohms resistance with the same apparatus.

The writer was somewhat surprised to find that "induction" from other parallel circuits in the twenty-five or more miles of aeriel cable and long pole line in circuit, did not cause the armature of the receiving apparatus to vibrate, but there was apparently no such effect, probably due to the fact that the

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polarized relay coil was of comparatively low resistance.

The above-named company, we understand, is a comparatively new concern, and has already applied the principle just described in a great number of signaling devices, among them being a superior system of fire and burglar alarm, hotel annunciator call bell, the Morse telegraph, and last but not least, the operation of semaphores on a railroad. In fact, the new device may be successfully substituted for battery power wherever the latter is at present required for signaling purposes.

From an economical standpoint the new system should have few rivals. There being no current on the line except during the actual process of turning in a signal, there can be no waste of battery material; and on account of the penetrating character of the magneto current, iron instead of copper conductors may be employed in constructing new plants. Neither should the weather have any particularly detrimental effect on the apparatus, as there is neither "escape" on a "dead" wire nor retractile spring on the apparatus to adjust; while ordinary line resistance plays so unimportant a part that the same apparatus will deliver its signal with equal certainty through a one mile or a twenty mile circuit.

Should any reader taking any interest in the subject visit the Pan-American Exposition at Buffalo this summer he will have an opportunity to witness the various signaling devices by calling at the Electrical Building, where the apparatus will be on exhibition.

Business Notices.

So many inquiries have been received asking for the name of the inventor of the Twentieth Century Telegraph Key, described in these columns in the issue of May 1, that we desire to say that the gentleman having the honor of this invention is Mr. Charles Shirley, manager of the main office of the Postal Telegraph-Cable Company, New York. It is reliably stated that the demand for this key is very great on account of the relief afforded the operator and by the solidity of the signals transmitted, as well as by those who are suffering from overstrain, and that it is being used on a number of heavy press circuits going out of New York.

The Smith Premier Typewriter Company, of Syracuse, N. Y., has issued from its London office one of the most unique brochures that has lately come under our notice, entitled "Souvenir of the Siege of Mafeking." It appears that the machines manufactured by this company have been largely used in the British army in South Africa during the Boer war. The booklet opens with an apt introduction of historic interest written by the war correspondent of the London Daily Mail, following which the pages are filled with fac-simile reproductions written on the Smith Premier typewriter, of some of the most interesting general orders issued to the garrison of Mafeking by General Baden-Powell during the siege.

It is an astonishing fact that in this age of labor-saving appliances, the old-fashioned washboard is still used in the great majority of homes. If there is anything in the world which needs labor and time saving machinery, it is the washing of clothes, an operation which upsets every household fifty-two times a year. There is such a thing as an effective way of reducing labor, time and expense by the adoption of new methods and appliances. Among the many recent inventions, none deserves so much praise as the 1900 Washing Machine, manufactured and sold by the 1900 Washer Co., of Binghamton, N. Y. It must be a very good machine, for the manufacturers send it to any one, freight paid, on a thirty days' trial. They will also pay the freight back if the machine does not prove satisfactory.

The Signal Corps Telegraph in the Philippines.

A problem will confront General Greely, Chief Signal Officer, when he invades the Philippine archipelago in July. His force of officers will be cut in twain at that time, and his struggle will be, after inspecting the situation with his own eyes, to map out the remaining work of the Signal Corps so that fifteen officers can perform the duties hitherto distributed among thirty. The red lines on the official map of the Philippine Islands show a system of land wires and submarine cables stretching between extremes about a thousand miles apart, but so ramified as to compose a total length of between 4,200 and 4,300 miles, or enough to make a line from San Francisco to New York and back to Chicago. Over this system there pass an average of 10,000 Government messages a day, these messages averaging at least 100 words, so that, in round numbers, it may be said that 1,000,000 words are transmitted daily by telegraph on Government business. This is almost a necessity of the situation, in view of the absence of any proper postal facilities. It is the only efficient means of communication between the military and other functionaries of the Government. The abundant use of the wire, indeed, has given rise to a witticism by one of the signal officers, speaking of his army brethren at a certain headquarters: "They never send any dispatches; they merely file letters." It is natural that they do, if we reflect that the news of the first operations of our forces in Mindanao did not reach Manila for three weeks, whereas the same points on the same island can communicate with the capital now in 15 minutes.

Coming Conventions.

The Train Dispatchers' Association of America at San Francisco, Cal., June 11, 12.

The Association of Railway Telegraph Superintendents, at Buffalo, N. Y., June 19, 20, 21.

The International Association of Municipal Electricians, at Niagara Falls, N. Y., September 2, 3, 4.

The Old Time Telegraphers' Association and the United States Military Telegraph Corps (jointly), at Montreal, Quebec, September 11, 12, 13.

The German Government is experimenting with the Rowland Printing Telegraph System.

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The Edison Storage Battery.

The new Edison storage battery, which is at the present time creating such a sensation in electrical circles, is the invention of that veteran inventor, Thomas A. Edison. It consists of iron and nickel-oxide plates in a solution of potash—whereby the weight-efficiency of the accumulator has been increased two and one-half times. And this method has been almost under the hands of investigators for twenty years, yet has remained undiscovered! This means that for the same weight the new storage battery should do two and one-half times as much work as present types. In addition to this signal achievement the veteran inventor has also announced a battery having a high discharge rate, an insignificant depreciation and a low first cost.

Mr. Edison has produced no invention of broader utility in the electrical field since incandescent lighting was evolved from the busy brain of the same pioneer of industry. It is hard to foresee all the meaning of this improvement.

In his library at the laboratory building in West Orange, N. J., Mr. Thomas A. Edison the other day consented to talk with a representative of the Electrical Review a little about the new storage battery, which has just been described by Dr. A. E. Kennelly at the meeting of the American Institute of Electrical Engineers.

"About the new battery? Why, I think that the curious phenomenon known as the 'passive state' has concealed the operation of this form of cell from scientific men for a generation. You know that if you put a piece of iron in strong nitric acid it goes into what is called the passive state and no action takes place. Nothing happens at all. The magnetic metals, iron, nickel and cobalt, are unique in this respect. Now that was a good place to start experimental work. It is a curious phenomenon and unique, and I believe the passive state has preserved this thing for me while all the others were looking in other directions for it.

"Why did I go back to electrical work? I have had a hankering after chemistry for many years and have turned to it for pleasure. Most of my reading for a long time has been in connection with this science, and I have found it very interesting. You know I never invent anything if I can help it that is not wanted. I knew that there was nothing better to work on than this storage battery problem. I took it up first about two years ago, working at it off and on, so to speak, but last August I buckled down to it exclusively."

Mr. Edison was asked how many experiments he had conducted before arriving at the successful conclusion.

"How many experiments? We have made about 10,000 different tests. Of course, you understand that as many as 60 to 80 of these were going on at once. It was a rather discouraging thing to undertake to make iron serve in the storage battery, and that passive-state feature made it look like a mighty hard wall to climb, but we coaxed it and coaxed it until at last it was found out how to make iron take in and give out oxygen the way we wanted it.

"The nearest thing I can suggest as to analogy to the way these iron and nickel salts behave in taking in oxygen is the cementing process by which malleable iron is made. The outside layer of iron takes up oxygen and the next layer seems to abstract this, and so on until the oxygen permeates the mass. It is too much solidified by pressure, I think, for ions actually to travel into the mass, and I think something like this cementation process actually goes on."

Talking of the commercial side of the subject and the utility of the new iron-nickel-potash cell, Mr. Edison said: "The normal discharge-rate of these cells is about three and one-half hours. That means actually that they will give out current without over-discharge faster than an automobile can take it. Then, again, we have over-charged the cells in one case so rapidly that we had to keep them in cold water to prevent their boiling; we have over-discharged them, and even turned them around and charged them backwards without doing any damage to them whatever. We have pulled the active element out of the solution and laid it out here in the yard for a week to dry, and found that it was all right when we put it back in the electrolyte."

As to the commercial side of the matter, it was learned that machinery has already been ordered to begin the manufacture of these cells on a large scale. The business will be conducted without affiliation with other corporations as an independent manufacturing concern. It is believed by Mr. Edison and his associates that commercial quantities of these batteries will be ready for delivery early in the autumn of this year.

Recent Telegraph Patents.

A patent for a multiple telegraph device has been granted to Samuel T. Foster, Jr., of Laredo, Tex.

A patent for a printing telegraph instrument has been granted to Louis M. Casella, of London, England.

A patent for an apparatus for use in wireless telegraphy has been granted to John Burry, of Fort Lee, N. J.

A patent for a long-distance typewriting telegraph device has been granted to Arthur J. Farmer, of Detroit, Mich.

Excellent Cuban Telegraph Service.

In general orders relieving Colonel Henry H. C. Dunwoody, General Wood highly compliments him upon the services he has rendered to Cuba, for the high efficiency of the telegraph service. "At the time of the intervention," said the Governor-General, "the telegraphic conditions were chaotic. Now there is a system from one end of the island to the other equal to that in the United States.

The Mortimer D. Shaw Monument Fund subscription having been closed, the total amount of money raised being $158.90, it was expected that the shaft would be finished and probably erected by Decoration Day, May 30.

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Personal Mention.

Mrs. J. D. Reid, wife of the late James D. Reid, sailed for Europe May 21. She will reside in future in Edinburgh, Scotland.

Mr. Charles Bradbury, superintendent of Government telegraphs at Sandakan, Borneo, has resigned, and is now at Northampton, England.

Mr. Arthur C. Frost, superintendent of the Direct United States Cable Company, New York, left for England on June 1 for a three months' holiday. A large number of friends assembled at the pier to bid him bon voyage.

Mr. C. W. Lundy, superintendent of the Direct United States Cable Company, Halifax, N. S., was in New York a few days since en route home from Bermuda, where he has been recuperating from pneumonia. Mr. Lundy was a member of the expedition that laid the first Atlantic cable, and he was also a member of the electrical staff on board of the Great Eastern when she laid the second Atlantic cable.

Obituary.

W. H. Apgar, an operator at High Bridge, N. J., died on May 10, aged 43 years.

Philo S. Dilworth, a Western Union operator, died at his home in Ingram, Pa., on May 20, aged 48 years.

J. E. Ferris, of late an operator in a New York broker's office, a native of Kansas City, Mo., died at Liberty, N. Y., May 13, aged 30 years.

Merritt H. Thompson, a Western Union Telegraph operator, who has seen service in various parts of the country, died at his home in Hornellsville, N. Y., on May 14, aged 44 years.

H. Fondersmith, a member of the Old Time Telegraphers' Association and division operator on the Philadelphia division of the Pennsylvania Railroad, with headquarters at West Philadelphia, died suddenly of apoplexy at Wynnewood, Pa., on May 26, He was born at Doe Run, Pa., June 14, 1846, and learning telegraphy entered the service of the Pennsylvania Railroad in 1863, remaining constantly in the employ of that company throughout his life.

New York Visitors.

Mr. Charles E. Yetman, the telegraph inventor, of Ilion, N. Y.

Col. William B. Wilson, of Philadelphia, Pa., president of the United States Military Telegraph Corps.

Mr. E. A. Smith, superintendent of the Fitchburg Division of the Boston and Maine Railroad, Boston, Mass.

Mr. H. J. Pettingill, vice-president of the Erie Telephone Company, Boston, Mass., and formerly superintendent of the Postal Telegraph-Cable Company in that city.

Miscellaneous Items.

Born to Mr. and Mrs. A. V. Hartley, of Rich Valley, Minn., on May 18, a son. The father has promised to subscribe for TELERGAPH AGE for the young man when he shall be old enough to read.

Fire recently destroyed 100,000 cedar telegraph poles belonging to the Western Union Telegraph Company on the west bank of the Rouge River at Delray, Mich. The poles were valued at about $150,000.

C. F. Sweeney, operator at the Western Union telegraph office at Montpelier, Vt., has written a poem which he has dedicated to the hat he wore during the Cuban campaign. It tells of the trials and troubles which the hat has had in the campaign, and, in fact, after the campaign was over. The poem has been put on pasteboard and nailed on the wall underneath the hat. The poem is entitled "The Fighting Hat."

Mr. Robert Magrane, formerly of the New York Herald telegraph night force and who was a student at the Pratt Institute, Brooklyn, at the same time, won a one year scholarship in Harvard University. During that term there he has won additional scholarships, thereby extending his term over the entire University course of four years. The dean of Harvard states that Mr. Magrane is among the first fifty in over 5,000 students.

Mr. Frank M. Raab, manager for the Western Union office and electrician at the State Hospital, Toledo, Ohio, has been granted a patent on a telegraph key, which, to say the least, is unique and a radical departure from the old style. This key can be attached to any ordinary key by means of a short cord, which is secured between the platinum points by screwing the lever down. The device consists of a rubber bulb, which, when squeezed, forces a plunger in and out of the socket, thus closing and opening the circuit, forming dots and dashes. The transmitting is effected in this novel manner. It is said that it will afford relief to anyone suffering from operator's cramp. Mr. Raab designed this key for his own use, and has used it for nearly two years, sending good Morse with it, something he was not able to do before.

To get in on the "ground floor" of the New York Stock Exchange is a costly undertaking, from almost every point of view. This is shown by the fact that the Western Union Telegraph Company for its future quarters in the new Exchange building, to be completed about a year hence, will pay therefor a rental at the rate of $25,000 a year for a period of twenty-one years. A lease to this effect was recorded on May 15.

In these days when technical knowledge is of such value to the telegrapher who would master his profession, its acquisition becomes of supreme importance. A subscription to TELEGRAPH AGE will supply the information every operator needs.

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A "Standard" in Handwriting.

A letter has been printed in the Richmond (Va.) Dispatch, of a recent date, which we think railroad telegraph superintentends ought to consider. The article is contributed by a person signing himself "J. E. H.," and is as follows:

"You have written several articles on 'Pleasing Penmanship,' etc. I enclose one written by Mr. L. C. Hall, chief operator for the Western Union Telegraph Company, at Norfolk, Va., which I think would solve the problem so far as it can be solved.

"Mr. Hall is well known in telegraph circles, and is well thought of by the Western Union people, and others.

"I think more would be accomplished if the railroads were to adopt a standard of penmanship, and have it placed in the back of their schedules, and books of rules and regulations (which they could easily do, with suggestions to their employees to adopt it), than would be done if the telegraph companies should adopt one. Because of the perfect adaptability of the typewriter to telegraph work, and for other reasons, I doubt if the telegraph companies ever will act in the matter. It is not so with railroads; much of their work cannot be done on the twpewriter. Much of your mail comes from railway employees, whose writing would be improved by this method.

"An effort of this kind on the part of the railroads would have an educational effect on the public generally. Years ago, when I was on the Chesapeake & Ohio Railroad, the writing of E. T. Smith and M. B. Leonard, both now dead, was imitated so closely by several men in my office, that it could scarcely be distinguished from the writing of those gentlemen, and this without suggestions from any one. This proves the correctness of Mr. Hall's idea.

"Railroads have adopted a standard for everything mechanical, why not adopt a standard penmanship? In 1882 four men were killed, and much property destroyed, just west of Quinnimont, W. Va., by one crew misreading a badly written order —reading the word 'four' as 'five'—and I have heard of other accidents due to poor writing."

The letter of Mr. Hall, referred to above, which was recently published in TELEGRAPH AGE, seems so apropos at this time that we reprint it:

"In looking over the telegraphic service, with a view of seeking out and remedying its weak points, one cannot fail to be struck by the fact that the handwriting of a great number of operators is very poor. In the case of nearly all the small offices, where, as a matter of course, the less proficient operators are employed, the poor quality of chirography turned out very often amounts to almost positive ineligiblity, and the impression made upon the users of the wires—the local and traveling public—is that the service generally is performed in a slipshod and careless manner. As far back as I can remember, the difficulty in deciphering a telegram has been a subject of adverse comment and jest. There can be no doubt that this criticism is justified in no small degree, and that it reflects no credit upon our profession. Of course, in the larger offices this cause of complaint has been very generally removed by the introduction of the typewriter, but in the small branch offices and the thousands of small railway stations not much regard, as a general thing, is paid to legibility and neatness in the copies delivered to patrons. In very many instances the blank is not properly filled out, the time is omitted, the date left off, and, in short, the condition in which the message reaches the addressee is anything else than business-like and creditable.

"Now, for a long time I have thought that something might be done for the benefit and credit of the service in this regard, and believing that it would cost nothing to try it, I venture to offer a suggestion.

"It is a well known fact that a telegram written in a clean, pretty hand is always an object of lively interest to the less proficient telegraphers. When such a 'copy' passes through their hands they admire it, examine it, and study it critically, and never fail to envy the man who can turn out such work. More than that, they analyze the chirography and are seized with an instant desire to imitate its style, especially where specimens of the admired copy are constantly before them. Every observer has noted the effect made upon an office full of young operators by the advent of a single gilt-edged telegrapher among them. And what is true of one office is true of the service as a whole. If a plan can be adopted whereby specimens of the best telegraphic copies can be kept constantly before the embryo operator, he will soon be found copying a style that he most admires, and the result will soon show itself in the class of work he turns out. As it is from the beginners, thus influenced, that the ranks of the first-class talent must finally be recruited, it is of the utmost importance that they be started right. How to carry out such a plan effectively and inexpensively is the question.

"My idea is that the telegraph companies and journals ought to take the matter up and push it along. Let each company cause to be bound in every tariff book sent out fac-similes of 'copies' from the pens of the best operators, and let the journals devoted to the interest of the telegraphers print reproductions of messages copied in the best style of telegraphic handwriting. A half-dozen such copies inserted in the tariff books and telegraph papers, and kept there month after month, would exert an educational influence that would spread over the whole country and elevate the standard of telegraphic work everywhere. There is nothing like a good object lesson for teaching the idea, and particularly the young idea, how to shoot."

Every telegrapher who loves his profession, who is determined to master its technicalities, and thus insure for himself the confidence and respect of his official superiors and place himself in the direct line of promotion, should subscribe for TELEGRAPH AGE.

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Telegraphs by Static Electricity.

William A. Eddy, the famous kite-flying expert, of Bayonne, N. J., whose experiments in investigating meteorological and electrical conditions in the upper strata of the atmosphere have in the past few years gained him an international reputation, has just concluded a series of experiments on atmospheric electricity, the results of which promise to be of interest and value to electricians the world over. In response to a recent request from a newspaper, Mr. Eddy describes these experiments in the following article:

"At Bayonne, N. J., on Saturday, while experimenting with my kite-sustained steel wire, I proved practically beyond a doubt for the first time that atmospheric electricity can be used as a means of telegraphic communication, thus doing away with the battery, dynamo, Morse sounder or magnet, and almost entirely without other apparatus than iron rods driven into the ground, by means of which the perpetually charged wire from the upper air is silenced until a new charge instantly collects. I found that one wire running east and west, and up into the air through a ring aloft, when brought into connection with another high wire running north and south, caused, when one of the terminals was grounded, a slight excess of atmospheric electric action in the wire extending east and west, and across the line of the earth's magnetic pole, which extends nearly north and south.

"The three steel wires were raised in the form of an immense church spire outline, with a very broad base about 300 feet across. One edge of this upward-reaching triangle was formed by the steel wire kite cable, which went on up beyond the apex of the wire spire to a height of about 1,000 feet, maintained aloft by two mammoth kites. Telegraphic signals were transmitted from any one station on the ground simultaneously to the two others by simply grounding the wire at any one station, when the power to draw half-inch sparks at the other stations instantly vanished, except on the wire running east and west, where sparks one-sixteenth of an inch in length continued. By detaching the iron rod the sparking power was instantly restored at the other stations. It was like shutting on and off a light in army signaling, and so making dots and dashes.

"A prominent telegraph manager tells me that the dot and dash Morse signal for A has been often filled in by stray currents and made to sound like L, and that this is particularly likely to happen on the western wire from New York and Philadelphia to Pittsburg. This line is known to the operators as a 'heavy wire,' but the operators become used to it and automatically correct these and other dot and dash errors. I believe that while the iron mines of Pennsylvania have some magnetic action on the wires, yet that most of the effect arises from atmospheric electricity. While little if any magnetic effect is produced on the short wires used by me at Bayonne, yet on a line 500 miles long, extending to a high point in the mountains, atmospheric electrical disturbances of the wire are certainly caused. I have double proof of this fact. A lineman with whom I talked, who has repaired lines in the mountains, tells me that the wires there sometimes become so highly charged that gloves are no protection, and that the work at times has to be abandoned.

"I have since 1892 given up all attempts to handle kite-sustained steel wire at Bayonne, except by the use of air spaces and dry pine sticks more than a foot in length, finding the shock all the greater when the charge breaks its way through the gloves, which allow additional accumulation of electric force until the shock comes.

"I believe that this at present unmanageable static electric force from the air could be collected at a high point in the mountains on large copper insulated disks, without kites, and used to electrify the line to the west from New York, and that static attraction and repulsion might be used with delicate instruments and without magnetism.

"While Professor Dolbear planned at one time to telegraph by means of frictional static electricity, yet I believe this is the first successful use of electricity from the sky for telegraphic purposes. It all depends upon the spark-gap system devised in Philadelphia in 1752 by that great statesman, patriot and savant, Benjaman Franklin."

Telegraphy in the Philippines.

When Manila fell there were practically no telegraph or cable connections anywhere in the Philippines. The system of land wires connecting the principal towns, and the cable between Manila and Iloilo, and Iloilo and Cebu, had been sealed and abandoned by the owners, the Eastern Extension, Australasia and China Cable Company, which announced that it would not open until the United States could assure protection for its employees and property.

Immediately upon the occupation of Manila the question of wires assumed a serious phase. Indeed the trouble began at the capture of the place, and the destruction of our wires was the first hostile act of the insurgents. Upon Aguinaldo's taking the war path it became useless to stretch a line unless it was defended by a patrol close enough together to shout a message along. The system abandoned by the Eastern Extension Company fell into his hands. He opened, repaired, improved and untwisted wire rope, and always managing to destroy the portions in the territory he was forced from time to time to yield. The insurgents knew the value of wires and at every opportunity a few men would slip by our lines or between them and haul away as much as they could conveniently carry.

Cable, though far more costly and requiring more time to lay, could be maintained in the Philippines; for the Filipinos had no "picking-up gear," nor grappling and cutting utensils. The war department decided to establish a complete cable system, with alternates, as soon as possible. Contracts were placed, the work was rushed and the Hooker, the first Philippine cable ship was dispatched post haste, taking on part of her equipment, which was procured in England, at Gibraltar.

The problem of securing a satisfactory force had been by no means an easy one, for the business of

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cable laying is a new one in the United States. The services of Mr. Otto Strubel, an engineer of the French Cable Company, were secured, and those of Mr. Henry Winter, an officer of the Anglo-American cable ship Minia. But three men of the Hooker's crew had had experience in cable work. An expert jointer of rubber cable was enlisted in New York, but he deserted the expedition a few days before it left. Care had been taken, though, to have two sergeants of the signal corps instructed by him in the art, in case of such an emergency.

After arriving in Manila the Hooker was sent to Hong Kong to coal, struck an outlying reef off Corregidor Island, and after all, down went the cable to the bottom of the sea. Of course, that was its ultimate destination, but not in a lump. The ship was a total loss, but most of the cable and machinery, though somewhat damaged, was recovered and taken back to Manila. Then the Romulus was chartered and equipped with the recovered paraphernalia.

For the work in rivers and other shallow bodies of water, barges were equipped and towed by small gunboats. The gunboats could repel disturbers and the same exposure was not necessary in reeling out the cable from the barges as was required to stretch land lines. About every five miles, stops would be made to test what had been laid. The small military force that accompanied these expeditions when in hostile country, was deployed as pickets when the electricians landed to make the tests. For the actual work of establishing the lines, it was necessary to employ natives. It takes three natives to do the work of one American workman, but the native asks only $5 per month salary, and his accustomed fare of rice, dried fish, etc. He loves to squat when reeling the cables and he works with as little effort as possible.

The first work was done by the army, but subsequently contracts were let for the entire work, laying as well as furnishing the cable. The Government furnishes the cable ship, the necessary military protection and an officer as director and inspector. Within the past twelve months the United States Government has fitted up the steamer Burnside as a cable ship, and this vessel with Mr. E. Winter, commanding and Mr. F. A. Hamilton, a cable engineer of international reputation, as electrician, has accomplished effective cable work. More than 2,000 miles have now been laid, almost enough to reach from Honolulu to San Francisco. All the principal cities and every island of any size are connected. To be more explicit, cables connect Manila and Cavite, Tagulg and Calamba, Aagulg and Binang, Calamba and Los Banos, Los Banos and Santa Cruz, Liloan and Ormoc, Cebu and Liloan, Leyte and Tacloban and Samar, Naic and Corregidor, Guinayangan and Pasaco, and other points from the islands of Cebu to Bahol, Negros to Cebu, Cebu to Mindanao, Jolo to Mindanao, and also connecting points on the islands of Mindanao, where land wires cannot yet be maintained. Most of the work has thus been accomplished in the past twelve months, and little trouble is being experienced from intentional interruption.

Very often ships weighing anchor in the harbors, find the flukes entangled with the cables, and to save a few minutes' time, cut the cable instead of disengaging it. Nine out of ten of the breaks are due to this cause.

A few days prior to the opening of the war, under an emergency contract with the Spanish Government, stimulated by the approach of hostilities, the company extended its Hong Kong cable, which landed on Luzon, at Balinao, to Manila. Admiral Dewey endeavored in vain to obtain a neutralization of this cable; the Spanish officers refused to permit him to use it. He, therefore, cut it. Five days after Manila fell he dispatched a vessel to the point of rupture, about two miles off Cavite, where the cable lay in about ten fathoms. The wave action had carried the ends about 200 feet apart, to the full length of a stout rope that had joined them to facilitate recovery. There was no regular cable to be had, and the repair was accomplished by splicing in a piece of insulated field wire with such an allowance of slack that the stay rope, which was left on, should bear the strain. Hong Kong was called only to find that to avoid complications, the company had sealed the cable; and after all the grappling and improvising the dispatch boat had to be continued. It was sometime after the protocol was signed that the Spaniards and the company's officers decided to break the seal. The use of a cable for exchange of messages in place of the slow service of the dispatch boat at this time would have been of inestimable value to this Government, but the British company took no note of that, and now it will probably cost them dear.

This Government is not in the International Telegraph Union, which practically eliminates our voice from the conduct of the great cables, and in case of emergency gives other countries—those in the union—prior right to the use of them. The Philippine system is America's first step in cables.

Publishers' Press.

The annual meeting of the Publishers' Press was held in New York on May 14. There was a fair attendance of members, and from the reading of the reports of the president, treasurer and secretary the association was shown to be in a flourishing condition, and that forty-nine new papers had become members during the year past. There was a morning and evening session, and the old board of officers and directors were unanimously re-elected for the coming year. These are as follows: J. B. Shale, of the Philadelphia Item, president; Andrew McLean, of the Brooklyn Citizen, vice-president; William Cullen Bryant, of the Brooklyn Times, treasurer; T. J. Keenan, of Pittsburg, secretary. Directors: The above and C. J. Bellamy, of Springfield, Mass., and W. P. Atkinson, of Erie, Pa. The Publishers' Press possesses quite an extensive leased wire telegraph system.

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Reinvented a Repeater.

Editor TELEGRAPH AGE:

With reference to the diagram and description of quadruplex repeaters sent you by Mr. J. C. Langley, of Dallas, Tex., published in TELEGRAPH AGE May 1, 1901, it may be of interest to note that this repeater was used with excellent results on the circuits of the Baltimore and Ohio Telegraph Co. as early as 1887, having been devised and patented by the writer about that time. A full description and a diagram (Fig. 191) of this repeater may be found in "American Telegraphy," in the chapter on Duplex and Quadruplex Repeaters. WM. MAVER, JR.

New York, May 17, 1901.

The Revenue Stamp Law.

The War Revenue Law requiring a one cent documentary revenue stamp affixed to each telegram has been repealed, to take effect July 1, 1901. Therefore, on and after that date, it will not be necessary to affix a revenue stamp to telegrams, with the exception of affixing a stamp to money transfers drawn in the United States but payable out of the United States. The sender of a money transfer drawn in the United States, and payable out of the United States, must attach to his application therefor a two cent documentary stamp for each one hundred dollars or fraction of one hundred dollars transferred.

The summary of the above is therefore as follows:

On all telegrams a revenue stamp need not be attached.

On all money transfers drawn in, and payable in the United States, a revenue stamp need not be attached.

On all money transfers drawn in the United States, and payable out of the United States, a two cent documentary stamp must be attached for each one hundred dollars or fraction thereof.

In Favor of the Western Union.

Judge Kohlsaat, of Chicago, in the United States Circuit Court, granted an injunction a few days since in the case of the Western Union Telegraph Company against the National Telegraph News Company and others, restraining the latter from publishing, selling or transmitting through their tickers or otherwise, news, quotations or other information which may hereafter be collected, formulated and transmitted by the Western Union Telegraph Company through its tickers. The prohibition holds good until the lapse of fully 60 minutes from the time such news items are first printed and appear upon the ticker tape. Judge Kohlsaat held that the Western Union Telegraph Company has a right of property in the news and information collected by it.

T. M. B. Association assessment No. 379 has been levied by the Telegraphers' Mutual Benefit Association of New York, to meet the claims arising from the deaths of Leander D. Parker at Chicago, Ill.; George Cowen at Providence, R. I.; Henry B. Tannatt at Springfield, Mass.; Wm. H. Clark at Washington, D. C., and Mercator Jessup at El Paso, Tex.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

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"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume, of which but a few copies of the first edition now remain, presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; price, $5.

"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones, 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

"TALES OF THE SIERRAS," by J. W. Hayes, 136 pages, illustrated. This volume, full of laughable incident, presents a collection of original and well told telegraph sketches, partaking in character largely of the former wild life of the frontier. The fun in the book, which never descends to vulgarity, is accentuated by droll illustrations by John L. Cassidy; bound in cloth, $1.10.

Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

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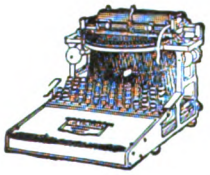


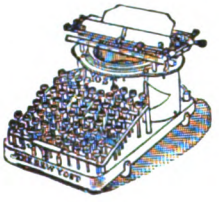
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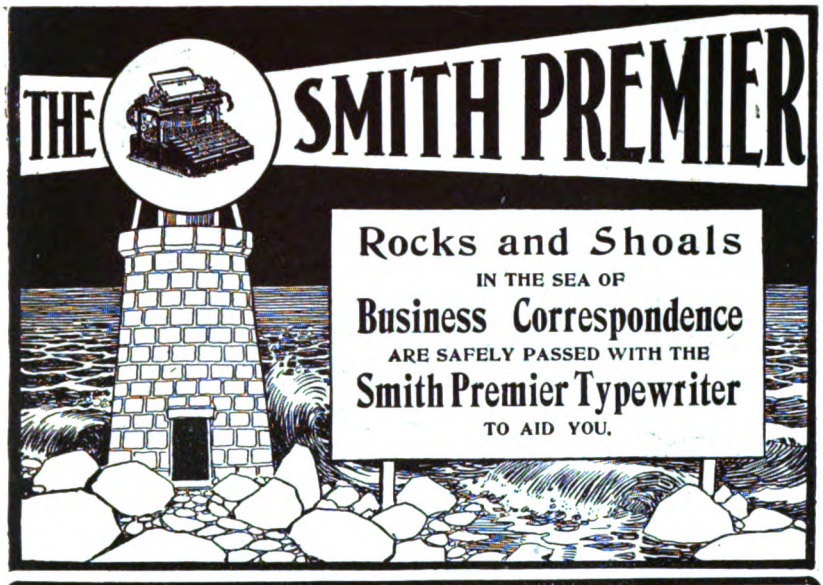
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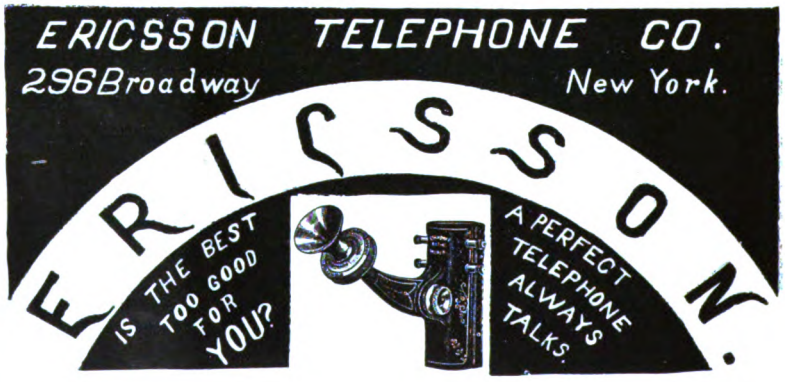
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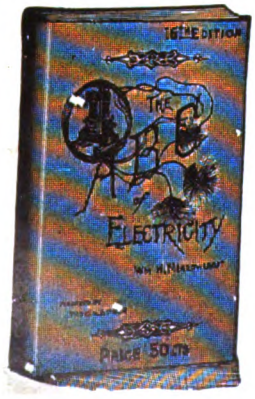
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The Telegraph Age.

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NEW YORK, June 1, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

Telegraph Users Should Pay the Charges.

The dawning realization that, after all, it is not the people, for whom the plea of lower telegraph charges has been made, but rather the business community who use the wires, and who, therefore, should pay for the service, puts in a new light the equities of the case between private and Government ownership. It has been claimed in some quarters that if the English system of Government telegraph control, with its lower rates, was introduced in this country, even with its attendant losses, the final results would be advantageous, inasmuch as the people would receive the benefit. The fact that the general public do not use the telegraph, except in a very limited degree, appears hitherto to have been lost sight of by those who have been clamoring for a change. It should be remembered that the great bulk of the telegraphic business is occasioned by the requirements of the business world, who very properly should pay for such service. The payment of a tax by the public at large in order to meet a telegraphic deficit, for which the people are not responsible and which would inevitably follow Government control of the telegraph and lower rates, is too grotesque a proposition to be worthy of consideration. Let those who use the telegraph pay for it.

The Latest.

Wireless telegraphy employed as a method of illustrating certain spiritual similitudes by a clergyman in his church in a suburb of New York city, on a recent Sunday, marks at least a novel, if not an elevating, advance in this latest addition to electrical science. The clergyman stood in his pulpit surrounded by batteries and other electrical appliances, comprising a complete set of apparatus similar to that used by Marconi. The receiving instruments were mounted on a table. Extending in the air from each instrument was a bamboo pole which collected the electrical waves. Messages were sent and received by wireless telegraphy, the system was explained to the congregation, and deductions made therefrom in support of Bible truths. A "side show" in the shape of a miniature trolley car to be run from one end of the church to the other, doubtless up and down one of the aisles, was to have been introduced, but this idea was abandoned. What spiritual truths were to be evolved out of a trolley car does not appear. Possibly the reverend gentleman had taken his stand at the entrance to the Brooklyn Bridge during rush hours, and after a contemplation of the scene, wisely abandoned all effort to evolve any theory relating to the development of spiritual mindedness out of what he saw at that point of intense observation. New Yorkers, it may be remarked, are not in the habit of looking upon such phenomena for inspiration calculated to influence higher spiritual manifestations.

Against Postal Telegraphy.

The press of New Orleans was formerly very outspoken in its advocacy of Postal Telegraphy in the United States. Hardly a week would pass that we did not receive marked copies of papers published in the Crescent City containing articles urgently calling upon the Government to take over and operate the telegraph lines. Latterly, however, a wholesome reaction of judgment regarding the subject appears to have taken place, as the facts as to the futility of Government control of the telegraphs, from every point of view, has been repeatedly demonstrated. The States, of New Orleans, in a recent issue has this to say:

"The advocates of the fad of Government ownership of quasi public corporations have received a severe blow by the announcement of the recent disastrous losses of the British Government in its experiments with the ownership of the telegraph system of that country. It was once the fashion in many respectable quarters in this country to point to the example of European monarchies as proofs of the fact that the Government can successfully and profitably own and operate railroads and telegraphs, and the alleged success of these Government ventures has been set forth as an unanswerable argument in

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favor of the absorption of these franchises by the Government of the United States. It must be a severe blow to the assurance of the propagators of these centralizing policies to read of the admissions made by Sir Michael Hicks-Beach, in the British House of Commons lately, that the annual loss sustained by the Government in the operation of its telegraphic service had been $3,500,000 annually, or $41,500,000 since the Government took charge of the service.

"It must be remembered, in this connection, that the experiment made by the British Government was undertaken under conditions the most favorable imaginable for the success of the experiment, but the result of several year's trial is not a little surprising. It is perfectly natural and proper that under a monarchical form of Government many enterprises should be absorbed and conducted by the crown, which would be incompatible with the governmental function in a system where the least possible interference with private enterprise and individual activity is the motto. Monopoly is of the essence of monarchy, but the basis of free government is the individual liberty of the citizen, and his indefeasible right to enter into full and unrestricted competition with all the world in all industrial and commercial enterprises.

"It is true, that the right resides in the Government to protect the citizen from oppression and extortion by great corporations, as well as by private individuals, and for this reason the right and duty of the Government to regulate the dealings of great public corporations, like telegraphs, railroads, etc., has never been denied.

"But among a great many people the regulation of the conduct of such corporations has not been considered sufficient, but their ownership and control by the Government has been vehemently insisted upon. Such sentiment has been particularly strong upon the part of the ill-informed, who are wont to favor drastic remedies to prevent distresses, without ever stopping to consider how far the principle advocated might operate in the creation of evils more serious than the one sought to be remedied. They see only the current distress and would remedy it by amputating the diseased member, which a little judicious treatment would thoroughly heal and restore in full vigor to its necessary functions.

"In addition to this clamor of the thoughtless and hasty for Government ownership of these great corporations, it is beginning to be more than suspected that another powerful and dangerous contingent is arising which is covertly looking to the same end. This contingent is no other than the owners of the corporations in question themselves. We have seen how, in recent days, one or two powerful syndicates have entered the field and consolidated most of the great railway systems of the country under a single ownership and management. It is interesting to observe that these great consolidations have been effected without the exchanges of cash in anywise proportionate to the magnitude of the transactions involved. The great bulk of the interests purchased has been secured by the issuance of additional stock based upon a business already largely over-capitalized, and this new stock—the principal constituent of which is water—constituted the greater portion of the consideration upon which the deal was effected. A little adroit manipulation and stirring up of a sentiment already existing in favor of government ownership might result in the unloading of all these fictitious assets upon the Government, and then who would be the loser? Would it be a great hardship for Mr. Morgan, for instance, to part, at a good round figure, with stock which he had paid for principally in wind, and the face value of which, by manipulating and consolidating, he had doubled and trebled and quadrupled? By the clever manipulation of the bellows Mr. Morgan and his associates have put themselves in a position where they can most profitably talk to the people of the United States on the subject of Government ownership of railways, and we should not be surprised to see this become a prominent public issue in the near future.

"To merely part title with those big blocks of wind at the fancy figures they have now attained, would, perhaps, be a very unpleasing prospect to those financial aeronauts: more particularly as they would then not only continue to control the roads, but in addition, they would have a pretty firm hold on the Government as well.

"England secured the telegraph system of Great Britain upon reasonable terms and operated it under conditions the most favorable imaginable for such an experiment. The result has been a continuous and appalling loss, and a correspondingly heavy burden upon the British taxpayers. What would have resulted had she attempted to handle such commodities as Morgan & Co. now seem to have in soak for this Government? There is a lesson in this for the Government ownership advocates in the United States."

President McKinley and the Pacific Cable.

President McKinley in his speech at San Francisco, May 18, on the occasion of the launching of battleship Ohio, said: "There is nothing in the world that brings people so close together as commerce. . . . The nations are close together now. The powers of the earth are tied together. We have overcome distance. We not only want a commerceial line, but we want a cable line from here to the Philippines. We want it to be an American cable that cannot be cut by any power in the world. It is said trade follows the flag. The telegraph must follow trade."

Telegraph Wires Laid on Snow.

Consul-General Guenther, of Frankfort, April 13, 1901, says that, according to experiments conducted by Mr. H. Janssen on Mont Blanc, it is not necessary to erect poles for stringing telephone and telegeraph wires in snow-covered countries. If the snow is several inches thick, it serves as a good insulator; the wires can simply be laid down and be ready for transmission of messages. The consul-general adds that similar experiments with equally favorable results were made out on Mount Aetna.

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TIM MURPHY'S GHOST.

BY BEN C. WILKENS.

It was in the early seventies, before the advent of the double track and the double train order system in the West, that I was installed as night dispatcher in a certain town of Iowa, on one of the great overland routes, that connects the Atlantic with the Pacific coast, by ribbons of steel. Although I was rated a good operator, I had had little experience as a train dispatcher, and accepted the position under protest, merely to satisfy a whim of the superintendent, who thought he recognized in me certain qualifications which would eventually develop into the making of a "bang up" dispatcher—as he expressed it.

Everything went well for a while—trains all on time, and the train sheets resembling stereotype plates, when I turned them over to the man on the day trick. But for all that, I was constantly pursued by that grim specter which forever haunts the man who has the handling of trains, bearing human freight; and it was not long before I attempted a feat, never yet accomplished by man, although hundreds and hundreds have tried it before me—and failed—that of passing two trains on the same track, going in opposite directions.

The result was the loss of several thousands of dollars to the railroad company, twenty-three box and flat cars in the ditch, smashed to smithereens, the track torn up for several rods, over one hundred dead hogs, and enough wheat strewn along the track to seed down the entire State of Iowa; and, lastly, a sufficient number of threshing machines, piled one on top of the other, to thresh the whole crop when harvested. The two engines were standing on end, locked in each other's arms, as if engaged in mortal combat. No human lives were lost, however, for which I went down on my knees and thanked God.

Of course, after this episode, I was held in ill repute among the railroad officials—a black sheep, as it were, and pointed out to such as did not already know me, as the "kid" who caused the awful wreck down at "Coon Hollow."

Needless to say I was discharged, and unable to obtain work again, even as a common operator, without money and without friends—for a man's friends generally desert him in the time of need—I started West, where I hoped to lose my identity, and commence life anew.

After a month of tramping, stealing rides on freight trains, sleeping in box cars and haystacks, I drifted into Denver one chilly morning in April, and presented myself before the superintendent of a certain road, under the name of "Jones."

In those days an operator was not obliged to provide himself with a passport, clearance papers or certificate of character, as the custom now requires; but if a man was a fair telegrapher, that was about the only passport necessary.

"We haven't anything very desirable," was the reply I received, in answer to my application for a position, as the superintendent tipped back in his chair and looked me over, "but we have been wanting an operator up at 'Dead Man's Gulch'," he added, "for several months. There isn't much of a town there—in fact no town at all—nothing but the station house, which consists of two rooms, --waiting room and office. Of course, you will have to do your own cooking, but the duties required of you are very easy.

"There are only four trains a day—two each way—one a freight and the other the fast express, called the 'Mountain Flyer,' which does not stop there, but goes through at a forty-mile gait. It will be your special duty to see that the switch lights are out and kept burning, also that the switches are correctly thrown and securely locked. The salary is—is—how much did we pay the last man we had at 'Dead Man's Gulch?'" he asked, turning to his clerk.

"You mean Tim Murphy, I presume—the man who was murdered," was the rejoinder.

"Ah, yes. You see, Mr. Jones, the last operator we had there was mysteriously shot one Saturday night, and since then we have been unable to find a man for his place. It is so lonely and isolated, and—well, some say Murphy's ghost is seen sitting at his desk near the window, every Saturday night; he was shot on a Saturday night, you know, just after he had reported the Flyer 'on time.'

"The pay," he continued, "we will make seventy-five dollars, and I think it will be the easiest way of earning seventy-five dollars of anything you have coupled onto. You will be allowed to visit Denver twice a month for supplies, and to renew your acquaintance with the world."

"Seventy-five dollars a month!" I mused to myself. "That is more money than I have seen in six months."

"I accept the position," I replied. "I don't care how many men have been shot there, or how often I am visited by Murphy's ghost. I do not believe in ghosts or goblins, and I am ready to start at once, but would like a good revolver. I presume that in this western country you provide your men with weapons of defense, the same as the express companies do."

"Certainly," he replied. "Here is poor Murphy's revolver, all loaded just as it was found on his person, after he was shot, with every chamber filled, which fact dispelled every suspicion of suicide. It was a cold blooded murder, and we have had detectives working on the case for months. There is a standing reward of $5,000 offered jointly by the Territory of Colorado and this company. We intend this case to be a lesson to the lawless people of the West—and this company will spare no pains in ferreting out and punishing all such violaters of the law."

An hour later I was aboard the up-freight, with a week's supply of groceries and a pint of what these Westerners term "Mountain Dew"; but in Iowa, I distinctly remember that the same grade of goods was sold under the name of "Kentucky Rye."

"This is Saturday night," I thought to myself, "and to-night Murphy's ghost is supposed to make its weekly visit."

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I do not consider myself a coward, neither am I superstitious to any great extent. Nevertheless, while I am not afraid of any man in the flesh, the thought that within a few hours I would be up in the mountains, twenty miles from any human being, with the recent stories I had heard of "Murphy's ghost," still fresh in my mind, and the possibility before me of meeting Murphy's fate, caused the chills to creep up my spine, till my teeth chattered and my courage began to ebb.

When the conductor took up my pass, and noticed my destination, I well remember the look of astonishment that crept over his face. Taking a second look at me, he leaned back against the seat and said:

"So they have found an operator at last, have they, for the Gulch? Ever been there?"

"No," I replied.

"Ever heard about the last operator who worked there?"

"Yes, the superintendent kindly told me all about him."

"He did, did he? Well, I'll bet he never told you about Tim's ghost; why, old Dad Spencer, who pulls the 'Flyer' says that every Saturday night since the murder—and that was six months ago—Tim's ghost sits at the desk in the window, and waves its hand at Dad, just as Tim used to do. Why, I wouldn't spend a night alone in that office for all the gold in these here mountains."

"Nor I," chimed in the brakeman. "The blood stains on the floor have been scrubbed out several times, and still they return every Sunday morning, just as fresh as the morning when we found Murphy dead on the floor, with the stove poker in his hand. Whether he was just going to stir the fire, or had seized the poker as a weapon of defense, we never knew; and it looks to me he never knew who or what killed him."

Our train had now left the plains, and was snorting and puffing up the canyon, first on one side of the turbulent Platte, and then on the other, wherever there was room to lay the rails; and where there was not room, a pathway had been chiseled out of the side of the mountains.

"We are going to have a bad night of it," remarked the conductor. "There is every indication of a cloudburst, and if you have never witnessed a storm in the mountains, you have missed one of the most thrilling events of a lifetime."

The canyon seemed to narrow as we crept up it, till we were walled in on both sides by high mountains, whose summits were lost in the low hanging clouds. It was quite dark when I reached my destination, for the darkness comes quickly and early in these great canyons, where the sun is discernible only a few hours of the day. The rain was falling in great drops, and the wind moaned down the gorge like a human being in distress.

"Goodby," shouted the conductor, from the rear of the caboose. "We'll stop and take you back to Denver in the morning—dead or alive."

The train passed from view, around the sharp curve, and the last vestige of my courage went with it. The place was the most lonely, wild and desolate of anything imagination can picture, yet romantic to the highest degree; set down between two mountains, whose summits were not now visible, the little river boiling and bubbling along over the rocks five hundred feet below—shut out from the world, not a house or human being probably within twenty miles.

Unlocking the door, I entered, and a feeling came over me which I cannot describe—a feeling that I was not alone in the little station house; and still the place was as deserted—yea, deserted and uncanny as the grave. My first duty was to light the lamps, cut the telegraph instruments in on the wire, and report my arrival to the dispatcher at Denver, who replied,

"Ha! good for you. Now keep your nerve, and don't think anything about Murphy's ghost, for it is all a josh, in my estimation."

I labored hard to think so myself, but in all my movements I was conscious of someone at my side, though unseen. I built a fire in the cookstove, unpacked my box of groceries, made coffee, smoked and tried hard to keep my mind fully occupied with everything except the one object that concerned me most.

For a couple of hours I busied myself looking over the records of the office, and listening to the click of the instruments. The storm had now broken in all its fury; the wind whistled down through the gulch, like steam escaping from a Mississippi steamboat. The rain pattered against the windows like hail, and now and then, above the roar of the storm, I could hear the wolves wrangling over the carcass of a dead steer which had fallen over the cliff the day before. I was lonesome, and if it had not been so infernally stormy, I should have locked up the office, and started back to Denver afoot. I tried to sing as a diversion, but my voice was strange, unnatural, and startled me. Occasionally I could hear the crash of falling trees upon the mountain side, where the storm must have been terriffic. At last, I lay down on the bunk, pulling a blanket over my face to shut out the awful lightning.

I fell asleep and must have slept several hours, when I was startled by the shrill whistle of the "Flyer." I raised up on my elbow, and looked towards the window, and there was the headlight just rounding the curve, swaying from side to side from the fearful momentum of the train. And—my God! was I dreaming? at the telegraph table, with one hand on the key, and the other shading his eyes as he peered out at the train, was the ghost of Tim Murphy!

While the rumble of the on-rushing train was still audible down the canyon, the apparition—or ghost, whichever you choose to call it,—arose from the chair, stretched leisurely, came over to the stove, and stooping down, picked up the poker. My blood seemed to be freezing in my veins, my brain was burning up, and the cold perspiration fell in great drops from my forehead.

What was that? Stealthily, there appeared at the ticket window, a dark, low-browed, murderous

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face. There was a flash and report of a revolver—what happened after that, I never knew.

The down-freight in the morning stopped to inquire how I got along with the ghost and found me unconscious on the floor. They took me back to Denver, and I immediately reported to the superintendent, and tendered my resignation. He listened to my story with the keenest interest, congratulated me on my pluck, and paid me a full month's salary.

"Just one moment," said he, as I thanked him, and turned to leave. "Do you think you would know that face again if you were to see it? the face in the ticket window, I mean?"

"Most assuredly," I replied. "It is burned into my memory like the brand on a Texas steer. I can never forget it—it is constantly before me. I could pick it out among ten thousand."

"After a few minutes of silence, he continued: "We have our suspicion who killed Tim Murphy, but are lacking substantial evidence. If you will report here to-night, at 10 o'clock, I will have our detective, Mr. Perkins, on hand, and he will conduct you through every gambling house and hell hole in the city. And if, among any of the people you meet, you chance to recognize that face, say nothing, but report to me in the morning where you saw it. Note the location carefully, and do nothing to create suspicion."

Perkins met me as agreed, and by midnight we had made the rounds of a dozen gambling houses. I had carefully scrutinized the faces of at least two hundred gamblers and toughs, but that face was not among them. By 2 o'clock we had added a dozen more resorts to our list, and still the face was not found. Then Perkins suggested that we visit a highly fashionable dive two miles out on the plains.

We summoned a hack for this trip, and as we entered, I found another passenger, evidently bound for the same place. It was a dark night, and although there were lights on the hack, I had not yet caught a glimpse of the stranger's face.

We pulled up at our destination, under the glaring light of a lamp post, and as I sat nearest the door, I was the first to alight, the stranger following next. As he stepped out, the light fell full on his face, and—my God! It was the face I had seen in my vision—the face in the ticket window. I know that I must have turned pale and trembled, for Perkins grasped my arm, saying:

"Why, what's the matter? Are you sick?"

We entered a brilliantly lighted and gaudy dance hall, and stepping up to the bar, I ordered a whiskey cocktail, to prevent my entire collapse. The stranger had entered ahead of us, and going behind the bar, hung up his coat and hat, from which I judged that he was, perhaps, the proprietor of the place; which I soon learned from the bartender, was a fact.

The next evening he was arrested, but as was expected, he was game to the last. He was conveyed to the city hospital, mortally wounded, and lived less than twenty-four hours. He confessed to Tim's murder, in my presence, and related all of the details just as I had seen them in my vision.

The reward of $5,000 was divided equally between Perkins and myself, and the Territory of Colorado was well rid of one of the most desperate characters of the day—Black Bart.

Features of the Late Wall Street Flurry.

During the recent exciting days on Wall street, when the common stock of Northern Pacific was being contended for, the volume of business reached enormous proportions, and the telegraph, cable and messenger companies were taxed to their utmost to meet the demands made upon them. The American District Telegraph Company, of which Mr. M. W. Ravens is superintendent, usually employs about 150 boys in its Exchange Court office in the financial district. During a period of about two weeks this number was more than doubled; and on Thursday, May 9, the date when Northern Pacific sold up to $1,000, requisitions for messengers were made upon every available source of supply, including even clerks, linemen, drivers of repair wagons and others, until a force of over 500 were actively employed, so great was the demand.

At the Postal Telegraph and the Commercial Cable Company's Broad street office an extra force of 100 messengers were received early in the day. The Bankers' and Brokers' Messenger Exchange on New street, which makes a specialty of furnishing messengers for the Stock Exchange, had 500 boys at work.

An estimate places the total number of messengers employed in the financial district during that eventful day as approximating 3,000.

A unique feature in the dispatch of the day's business, resorted to in order to save time, was the employment of electric automobiles by a dozen or more brokerage firms to carry messengers with orders to and from the Stock Exchange, now located temporarily in the Produce Exchange building, quite a distance from most of the larger offices.

One Helps the Other.

Mr. S. A. Duncan, assistant general superintendent of the Postal Telegraph-Cable Company at Atlanta, Ga., was recently interviewed by a New Orleans journal. He gave utterance to these very sensible remarks, which others who think the telegraph gone to the eternal bow-wows through the rapid increase of the local telephone service might well give heed. When asked whether the telephone business interfered with the telegraph in any way, he said:

"Not at all. The two are mutually beneficial to each other. The use of quick methods of communication is a matter of habit, and the constant user of the telephone is also generally a constant user of the telegraph, and people who have never used either to any extent, when they once become accustomed to the use of the telephone for short distances, are not satisfied with the slow processes of the mails for long distances, but use the telegraph, so each plays into each other's hand."

A subscription to TELEGRAPH AGE is regarded as a good investment.

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EXECUTIVE HEAD OF THE CUBAN TELEGRAPH.

MR. S. J. BLOODWORTH.

Mr. S. J. Bloodworth, whose portrait appears herewith, is the manager of the Central Telegraph office, Havana, Cuba, a position to which he was appointed on December 1, 1900, when he succeeded Paul Freeman, resigned. By virtue of this office Mr. Bloodworth has entire charge of the military telegraph lines of the Island of Cuba, acting under the immediate direction of the chief signal officer of that department.

Mr. Bloodworth is a native of Montgomery, Ala., and in the early eighties worked as a press operator at Nashville, Tenn., and at Selma and Montgomery, Ala. He took an active part in the great telegraph strike of 1883, after which he went to Galveston, Texas, where in May, 1884, he accepted employment with the Mexican Cable Company.



MR. S. J. BLOODWORTH.

After an engagement of fourteen months with that concern he went to Yucatan as superintendent of the American Telegraph and Telephone Company. Here he remained for three years, resigning to enter other business. In his ventures he was successful, and subsequently became interested in mining in Northern Mexico. Love for the dots and dashes, however, so difficult to overcome by all operators, took him once more into the telegraph field, this time seeking the service of the United States Signal Corps. The quick recognition of his well known executive ability and proficiency as an operator, gained for him promotion to the position of Administrator of the United States Signal Corps in the Province of Puerto-Principe, Cuba. And this advance was also speedily followed by a further promotion to the office he now holds. Many of our older readers will recall Mr. Bloodworth as a former agent and contributor to TELEGRAPH AGE, the time of such association dating back to a period of about sixteen years ago.

Dinner of the Morse Club.

The sixth annual dinner of the Morse Club was held at the Sturtevant House, New York, on Friday evening, May 24, to celebrate the fifty-sixth anniversary of the transmission of the first telegraphic message.

At the conclusion of the dinner, President Walter C. Burton called the assemblage to order and delivered a short address relative to the history and object of the club. This was followed by brief addresses from Col. A. B. DeFrece and Messrs. F. W. Jones, Gardner Irving, W. A. Van Orden, M. F. O'Brien and others.

At this point Prof. David Bimberg performed several fine selections on the violin, after which Mr. Marion H. Kerner entertained the company with some reminiscent remarks on the progress of the telegraph. His talk was illustrated with stereopticon views, many of which were of a humorous character.

The feature of the evening, however, was Mr. Kerner's presentation of what he terms "An Album of Familiar Faces." This consisted of the throwing of a number of faces of well-known telegraphers on a screen within a handsome oval-shaped frame, and which were received with much merriment. Among those thus shown were: Walter C. Burton, George J. Gould, James D. Reid, Andrew Carnegie, Thos. A. Edison, Gen. T. T. Eckert, Col. A. B. Chandler, Chas. A. Tinker, Jas. Merrihew, W. C. Humstone, W. J. Dealy, F. W. Jones, Edward C. Cockey, Henry Rogers, A. E. Sink, Thos. Brennan, Gardner Irving, Chas. L. Chase, M. H. Redding, D. B. Mitchell, Frank Smith, M. F. Gaffney, Geo. Leveene, E. P. Griffith, Col. A. B. DeFrece, W. A. Van Orden, J. B. Taltavall, John Brant, M. F. O'Brien, R. C. McDonald, F. T. Meyer, J. F. Shorey, M. H. Kerner, W. L. Ives, Walter Stillman.

At the conclusion of this part of the entertainment there was thrown upon the screen the words of the "Ode to Morse," which was sung by the entire company accompanied by Professor Bimberg on the violin and Mr. Larue, pianist.

The following officers were elected to serve the ensuing year: Gardner Irving, president; M. F. O'Brien, vice-president; M. F. Gaffney, treasurer; M. H. Kerner, secretary; W. A. Van Orden, historian. Governing committee: F. T. Meyer, F. W. Jones, W. C. Burton.

The proposition to merge the Morse Club into that of another, having been fully considered, it was unanimously determined that the distinctive character of this organization must be maintained, and from now on new life be installed into the club and an effort made to enlist the support of all telegraphers of both sexes and regardless of age. The amendments recently made to the by-laws renders it easily possible for every operator to bear the modest expense of membership.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.

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Association of Railway Telegraph Superintendents.

The twentieth annual convention of the Association of Railway Telegraph Superintendents, as previously noted in these columns, will be held at Buffalo, N. Y., meeting at Statler's Pan-American Hotel, on Wednesday, Thursday and Friday, June 19, 20, 21, respectively.

In completing the second decade of its existance, this organization seems to grow in vigor, and its meetings, while lately attracting increasing numbers, have also become marked with a greater earnestness of purpose. This is reflected especially in the thoughtful, suggestive and ampler breadth of statement shown in the various papers submitted for consideration and discussion before the meetings. The benefits to be derived from intelligent association of this kind are incalculable. The association certainly has been the means of accomplishing a vast amount of good in the educatory influences exerted, and reflected in the improved methods employed in the telegraphic departments of the railroads.

A number of valuable papers to be brought before the next meeting have already been prepared. While the list, with the names of the authors, is not yet fully completed, it will be substantially as follows, little, if any, changes being probable:

"Importance in Telegraphy of Apparent Little Things," by Thomas D. Lockwood, electrical engineer of the Bell Telephone Company, Boston, Mass.; "Rapid Telegraphy," by Walter P. Phillips, of Bridgeport, Conn., former general manager of the late United Press; "Storage Batteries," by W. E. Athearn, electrical engineer Western Union Telegraph Company, New York; "Cipher Code for Railroad Telegraphing," by C. S. Rhoads, of Indianapolis, Ind., superintendent of telegraph, Cleveland, Cincinnati, Chicago and St. Louis Railway Company; "Railroading by Telephone," by F. P. Valentine, of Boston, Mass., superintendent of telephones, New York, New Haven and Hartford Railroad Company; "Construction of Telegraph Relay from a Scientific Standpoint," by Prof. C. E. Freeman, of the Armour Institute, Chicago; "Line Construction," by C. H. Bristol, general superintendent of construction Western Union Telegraph Company, Chicago; "Crossing Alarms," by U. J. Fry, of Milwaukee, Wis., superintendent of telegraph, Chicago, Milwaukee and St. Paul Railway Company. Mr. William Maver, Jr., of New York, author and electrical expert, will lecture on "Automatic Telephone Exchanges," and Mr. George M. Dugan, of Chicago, superintendent of telegraph of the Illinois Central Railroad Company, will be prepared to be interrogated on the subject of "Underground Office Connections." It will be seen from the foregoing that the topics named cover a wide and interesting range of thought.

The meeting will be marked by the annual election of officers, the places to be filled being those of president, vice-president, and secretary and treasurer, now held respectively by W. F. Williams, of Portsmouth, Va., superintendent of telegraph of the Seaboard Air Line Railway; C. F. Annett, of Chicago, assistant superintendent of telegraph of the Illinois Central Railroad; and P. W. Drew, of Milwaukee, superintendent of telegraph of the Wisconsin Central Railroad.

Election of Officers.

At the annual meeting of the American Institute of Electrical Engineers, held in New York, May 21, the following officers were elected: President, Charles Proteus Steinmetz, Schenectady, N. Y. Vice-presidents, Prof. Samuel Sheldon, Brooklyn Polytechnic Institute; Prof. George F. Sever, Columbia University; Prof. M. I. Pupin, Columbia University. Managers, Prof. W. E. Goldsborough, Purdue University; Charles F. Scott, Pittsburg, Pa.; John W. Lieb, Jr., New York city; Capt. Samuel Reber, U. S. Army. Secretary, Ralph W. Pope, New York city. Treasurer, George A. Hamilton, New York city.

International Association of Municipal Electricians.

Mr. Frank P. Foster, secretary of the International Association of Municipal Electricians, is sending out a circular showing a list of hotels at Niagara Falls, together with their daily rates of board, that will be available to members at the next convention of the association, which meets at that point on September 2, 3, 4, next. Mr. W. G. Green, 473 Second street, and Mr. M. J. Donohue, superintendent of fire telegraph at Niagara Falls, will secure accommodations for all who require them to do so. Mr. Frank C. Mason, superintendent of Police Telegraph, 16 Smith street, Brooklyn, N. Y., has made special arrangements whereby all delegates and visitors to the convention can secure reduced railroad fare who go via New York city. Those wishing to take advantage of this opportunity should write to Mr. Mason and give the number they expect to have in their party.

J. P. Morgan Didn't Lease a Cable.

Managers of several of the cable companies in New York said recently that the report from Paris that Mr. J. P. Morgan, in consequence of his interest in affairs in Wall Street, on Friday, May 10, had leased an Atlantic cable for that day for his own private use, was a mistake. There wasn't much doubt in their minds, they said, that some cable had been used by Mr. Morgan, but they declared it to be impossible for any one to hire a cable for his own exclusive use for even an hour, let alone a day. An official of the French Cables Company said:

"No individual, and the same applies to a firm or company, could have hired a cable for private use for several reasons. One is an agreement entered into by the cable companies at an international convention at Berne several years ago, to the effect that they should not lease a cable to any private individual firm or company, and that with the exception of times when lines might be required for Government use they should always be kept open to the public. Another reason is that as he was in Paris Mr. Morgan would have had to use a telegraph line to either Brest or Havre to reach any cable, and as is well known the land lines are operated by the Government, which would not, under any consideration, lease one of its lines to a private individual.

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One report from Paris said that Mr. Morgan did get a line from the Government running to Brest, but you may take my word for it that he didn't. What he might have done and what he probably did do, provided his interest in affairs over here was as great as is believed, was to make an arrangement whereby the Government and the cable company agreed to send his messages right along, without letting other business interfere, until the number he filed at one time was all sent. When they had all been sent the company was bound to take anything that came along, and Mr. Morgan would have to wait his turn if he wanted any more sent. The only way he could have had a line to this country all day for himself was to have had part of the Bible sent or Pilgrim's Progress or some other such thing when he didn't have a message to send, and I guess he didn't do that. What would it have cost to do that all day? Oh, about half a million or so, or whatever the day's receipts of a cable are. There have been no instances of that being done, and I guess it wasn't done by Mr. Morgan or any one else."

At the offices of the Commercial Cable Company and the Western Union lines practically the same thing was said. It was also said that Mr. Morgan had not made use of their lines to any great extent on the day that he was reported to have leased a cable.

A Young Manager.

Shirley Errett is the name of a bright-eyed little miss of thirteen years who is acting manager for the Postal Telegraph-Cable Company in the marine office, Detroit, Mich. She is a little telegraphic wonder. She has entire charge of the office from 7 o'clock in the morning until 6.15 in the evening, and it is said she handles with ease two or three hundred messages a day.

A large part of the business goes through the main office, and the uptown operators say that Miss Shirley's "Morse" comes in with the precision and finish of an old timer. She is said to be capable of handling messages at the speed of forty words a minute.

Miss Olive Errett formerly had charge of the office, and Miss Shirley started in about a year ago to help her older sister. The younger sister soon learned telegraphy.

Miss Olive Errett was promoted to the uptown office the first of May, and she asked the manager to allow her sister the opportunity of filling her former position. He at first demurred, on account of Miss Shirley's age, but when he found his patrons along the river front had confidence in her ability to fill the position, he gave the girl the chance for which she had been longing.

Another novel feature of the office is that the "messenger boys" are girls. This is the only office in Detroit having such a service, and probably the only one in Michigan. The two young messenger girls are hustlers, and in their strict attention to business, they can give the messenger boys of Detroit many points in the quick delivery of messages.

If every "bull" had horns, there would be no women in the telegraph business.

New Responsibilities for Telegraph Companies.

A special decision handed down by District Judge Hawley in the United States Circuit Court of Appeals, at San Francisco, Cal., on May 15, adds another authority to those already quoted as placing telegraph companies in a position of peculiar responsibility regarding unauthorized acts of subordinates. The opinion was in reference to the suit growing out of the Bank of Palo Alto having been defrauded of $840 on Dec. 27, 1898, through a forged telegraphic order devised and transmitted by a San Francisco telegraph operator, then employed in one of the main offices in that city, to the bank in question.

The order purported to be signed by the Farmers' & Merchants' Bank, and by collusion another man called at the bank, and, representing himself as Harry L. Cator, the name mentioned in the order, obtained the money, identification having been waived in the telegram.

The Circuit Court gave judgment to the bank in its suit against the telegraph company, not only for the $840, but for $250 counsel fees and other expenses incurred in tracing the criminal.

In its decision the Appellate Court affirms this decision as far as the return of the money out of which the bank was defrauded, but sends the cause back for rehearing in the matter of the expenses incurred, that being no part of any fraud for which the telegraph company was responsible. The opinion refers to the peculiar position of telegraph operators which admits of such frauds, and states that for that reason the company must protect the public against wrongful acts of its servants, even though such acts are not within the line of their duties.

Meeting of the Telegraphic Historical Society.

At the annual meeting of the Telegraphic Historical Society of North America, held May 22 in New York, the proposition of consolidation with the Old Time Telegraphers' Association came up for discussion, and the officers of the society were instructed to make overtures to the latter with that end in view. After transacting routine business the meeting was adjourned, subject to the call of the president, to await the action of the old time telegraphers.

The Telegraph in Porto Rico.

It seems that the Porto Rican system will have to receive some form of Government support or be abandoned. The people there do not telegraph enough to support it. This is another proof that the island cannot be treated exactly like the rest of the United States.

On January 1, of this year, the United States Signal Service, which had up to that time operated the telegraph, turned the entire system over to the Insular Government.

The articles, "Some Points on Electricity," published regularly in TELEGRAPH AGE, are filled with practical information for the up-to-date operator. Send for a sample copy.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

The Telegraph in Alaska.

Juneau, Alaska.—Work of construction of the telegraph line down the Yukon River and across the cut-off from Kaltag to Nome has been resumed. The work is all being done by soldiers. That portion of the line across the cut-off is probably now completed.

A recent arrival from Nome states: "I left Nome February 19, and not many days after was over the portage. The soldiers had then resumed work on the line across the portage and had twenty miles more to build on this end. It is eighty miles across the portage. When we reached Tanana, or more properly Fort Gibbon, a party of soldiers there were preparing to leave for Kaltag, to build the line from there up the river. They were to get away about March 21. The wire has already been strung at various intervals along the river. It is not used yet for telegraphing. The policy seems to be to build at unbroken intervals and to connect the break later.

"The wire between St. Michael and Nome was prostrated over the land stretch when we came out. The wind had blown down the poles. All the poles were of iron and about as big as stovepipes. From St. Michael to Port Safety a cable is laid. It connects Port Safety with the land wire to Nome. I understand construction has been resumed on the line between Eagle and Valdes.

"There is scarcely any food except game on the trail between Nome and Tanana. We brought from Nome an outfit weighing 300 pounds, including largely food. It was well for us we did. Only seven or eight parties were met en route to Nome.

"The mail service below Tanana is poor and from Kaltag to Nome it has been almost a total failure this winter. Only one mail from the outside world has reached Nome this winter, up to the time we left. The mail got there February 6. It brought the first news of the election of McKinley."

NEW YORK, POSTAL.

Mr. J. B. Driscoll, the night piecework star of the first Boston circuit, has broken all previous records made with the new Twentieth Century Key. On May 20 he sent 272 messages in four consecutive hours, as they came, long and short, a rate of 68 per hour. Mr. J. J. McGarty at the Boston end was the receiving operator.

Miss Eleanor Spear, formerly check girl in Eastern Division, has been appointed as operator in City Department.

Resignations: H. A. Yoell, Hugh O'Rourke, Miss Maggie Conroy and C. A. Sherr, the latter returning to Ashcroft, B. C.

The refinishing of the operating tables and the placing of new instruments thereon has been completed, giving them the appearance of being entirely new, a reminder of the day the operating room was first opened.

Miss McEntee has been transferred to the city department, Mr. W. J. Shannon from city to eastern division, Mr. A. E. Whitaker has been assigned to the Philadelphia bonus wire, and Mr. C. P. West to the Chicago bonus wire. Mr. Thos. Tierney, of the newspaper locals, has returned after an absence of two weeks at his home in Lisbon Falls, Me., where he went to attend the burial of a brother.

Arrivals: Messrs. J. P. Jandorf, from Baltimore; R. W. Stiniers, from Chicago; Geo. J. Burmeister, from Western Union, Chicago; E. C. Peck, from Syracuse, N. Y.; F. Fernandez, from Signal Corps, Cuba; C. E. McCall, M. B. Moore, J. G. Good, C. D. Petry, E. N. Canedy, P. O'Donnell, J. T. Ewing, W. C. Wilson, G. Lehne, Liston; the Misses A. L. Hogan, H. Svenson.

AUGUSTA, GA., POSTAL.

We have comparatively a new set of men now, owing to the fact that some of our force have gone off for the summer, some have been promoted, and some have resigned.

Mr. W. G. Sale is now with the Western Union Company at Wilmington, N. C.

Mr. J. Knox Thrower has gone to New York, with the Western Union.

Mr. G. F. Rogers has gone to Savannah, Ga.

Arrivals: Mr. J. M. Sapp, formerly of Birmingham, Ala.; Mr. L. J. Perry and Mr. J. A. Finch, formerly of the Central of Georgia Railroad; Mr. F. W. Cameron, formerly of Los Angeles, Cal.; Mr. Geo. E. Delano, formerly of Wilmington, N. C., Western Union; Mr. J. S. Hayden, formerly of Dallas, Tex.

The men who still remain are: Messrs. J. Herrick, F. A. Luck, Jr., F. L. Wood, C. F. Wood, T. F. Crider, J. H. Barnwell, W. H. Hughes, R. M. Cameron, W. A. Stewart, S. Perrin, E. B. Faust, W. S Cannon, W. H. Conner, J. W. Plowden. Mr. M. H. H. Duvall is the chief operator; Mr. J. P. Edwards, assistant chief operator: Mr. W. J. Lenz, all night chief; Mr. J. D. McLelland, traffic chief.

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Mr. W. S. Daniel is chief clerk in the office of Superintendent T. R. Rusk, and Mr. R. R. Goodwin is his assistant.

The checks are Messrs. McAllister and Wallace.

Mr. R. D. Andrews is day counter clerk; Mr. D. H. Kanaly, night clerk.

AUGUSTA, GA., WESTERN UNION.

The personnel of this office is as follows: Mr. J. A. Brenner, superintendent; Mr. W. L. Brenner, assistant superintendent, and Miss Nellie Brenner, clerk. Judge John M. Crowley is manager; Mr. J. Roy Atkinson, bookkeeper; Mr. P. McLaughlin, clerk, days; Mr. Joseph Thomas, clerk, nights. Miss Rosa Bland has charge of the telephone department.

The operating room is in charge of Jno. W. Brown, chief operator and electrician; A. Potter, assistant chief operator; J. L. Laney, traffic chief; W. E. Seward, night chief operator; T. B. Yarboro, all night chief operator; Miss Smith, W. E. Norrell, L. B. Wilson, C. W. Bland, B. H. Rosson, J. L. Mounce, J. B. Dobson, G. M. Pike, H. R. Roediger, H. L. Pierce, V. E. Fourcher, G. W. Hammell, J. D. Thomas, St. C. Williams, B. Howell, J. O. Ewing, J. H. Norrell, F. L. Walters, L. B. Carlton, C. R. Hooton, F. A. Lynam.

Mr. W. D. Hill has charge of the gold and stock interests.

Clerks in the operating rooms are: Miss Minnie Walsh and Messrs. W. B. Tinsley, Irvine Milton, and John D. Heffernan.

Mr. L. B. Herring left us for a few months' sojourn in his old home at Wilmington, N. C.

Messrs. Harry Heard, Charles Smith and W. F. Ewing, old members of our force, are working this summer in New York.

Mr. Daniel Brown, from the New York office, was with us a few weeks, but has now returned.

Jacksonville, Fla., called on us for assistance at the time of the late conflagration; we loaned them two of our best operators, Messrs. Herman Roediger and John B. Dobson.

The Georgia Railroad, which connects Augusta, Macon and Atlanta, has the following competent telegraph force: Mr. J. H. Chapman, chief dispatcher, assisted by Messrs. R. B. Heath, first trick, J. S. Stovall, second, and Joseph L. Norman, third. Messrs. J. T. Stovall and J. T. Neal are at the yard office. Mr. J. E. Arno is operator in the superintendent's office.

Mr. E. A. McDonald, manager at Thomson, Ga., recently paid us a pleasant visit.

KANSAS CITY, MO., WESTERN UNION.

Arthur F. Kelleck has been added to the day force at the switchboard, and John H. Vogan is filling the place of night way chief. As both have grown up from check boys, and are thoroughly conversant with the inner workings of the office and surrounding territory, it is safe to predict a brilliant success for them.

Miss Edna Fuller has returned from Arizona, very much improved in health, and has resumed her duties in the Wheatstone department.

Mr. W. E. Allen has been added to the extra force. He has been working for several months at Nashville, Tenn.

Departures: Richard Wagstaff, for Muskogee, Indian Territory; Harry S. Lesen, for Chicago.

Michael S. Higgins, of this office, died on May 19. He was born at Columbus, Pa., August 8, 1863. He began his telegraphic career in a railroad office at Corry, Pa., and after passing through the student period, worked for the Nickel Plate Railway at Conneaut and Bellevue, Ohio. Coming West in 1885, he entered the employ of the Western Union Telegraph Co., in whose service he has since continually labored. Being a zealous worker and possessed of marked ability, he soon came in the line of promotion and filled the positions of night way, traffic, and wire chief, successively. The latter place he held until a year ago, when, owing to failing health and the nervous strain, he gave up the position and resumed the duties of way chief, to which he attended until a week previous to his death.

MONTREAL, QUE., CANADIAN PACIFIC.

One of the Twentieth Century telegraph keys has been placed on the Vancouver wire.

The new key will no doubt be a great boon to the sufferer from "lost grip" as well as to the "light weights."

Mr. Jas. D. McDonough, of the general manager's office, has accepted a position as secretary to Sir Charles Ross, bart., and will accompany him for a trip around the world.

Miss M. Duncan, who for the past three or four years manipulated the Ottawa circuit here, has been appointed agent for this company's office at Calgary, N. W. T. She has the best wishes of her Montreal friends, many of whom were at the station to bid her adieu as she departed for her new field.

It has just transpired that Mr. Walter Wright of the receiving department has become a benedict, and that his associates presented him with a handsome purse previous to his departure on his honeymoon.

Arrivals: Messrs. G. A. McBain, J. J. Irwin, M. P. Kernan, L. Van Every, W. Fraser, W. Vaillancourt, H. W. McLaren, D. P. McLaren, and J. Ellis.

Mr. H. Hodge has been transferred to the St. Catharine street East branch, and Master J. W. Ross has been promoted to the city wire department. Mr. H. Keating has resigned.

Mr. J. F. Skirrow, assistant manager of the Postal Telegraph-Cable Company, of New York, spent a few days here recently.

We are still doing business at the temporary offices, pending the completion of the new building, which will in all probability be ready for occupancy about the first of September next.

INDIANAPOLIS, IND., WESTERN UNION.

New arrivals: Messrs. E. C. Cotter, J. F. Davis and C. F. Freeman.

Departures: Messrs. L. S. Abrams and A. G. Knowles.

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Mr. William Broden has been transferred from a branch to the main office.

Mr. Arthur Hamilton, who has been severely ill, is again able for duty.

We are glad to hear from Mr. S. R. Fulton, assistant chief operator, who has been in Arizona with his family for several months on account of his wife's health, that the latter is being greatly benefited.

Mr. John Looney, chief operator of the Postal, mourns the death of his mother, who passed away May 12. The fraternity extends to him their heartfelt sympathy in his great loss.

ALBUQUERQUE, N. M., POSTAL.

Mr. J. A. Forehand, manager of this office during the past year and a half, has resigned and returned to Seattle, Wash., on account of his wife's health. He is now chief operator of that office, the position he held before coming to this place.

We regret to learn that Mrs. Forehand died shortly after her return to Seattle.

Mr. Forehand, during his stay here, has proved himself a gentleman of the highest type. He has won the sincere wishes of his associates for his future welfare. He was relieved by Mr. J. S. Creegan.

R. H. Hawkins is day repeater chief, W. K. Rawlins late night repeater chief, P. E. Drawver, operator. The first night trick being vacant at present, Mr. Rawlins is filling in.

CHICAGO, ILL., WESTERN UNION.

Messrs. Chas. Fuhrman, Harley Clark, and Peter Berresheim are absent on sick leave.

Frank Abbott is up and around on his crutches, and says he feels much better.

Thos. Chilton, ex-delivery clerk of the Western Union Telegraph Co., at Indianapolis, Ind., but now of Minneapolis, Minn., called at this office recently, renewing acquaintances among former Indianapolis operators, who are quite numerous in Chicago.

Mrs. Frank Dye returned to this office May 20, her coming being a surprise to all. She was assigned to her old wire, the Galesburg quad. All are glad to have her with us once more after some years' absence.

Mr. Frank Burdick is doing jury duty for a couple of weeks. He thinks it is all a joke.

For examples of courtesy and hustle, Messrs. Case and Schwartz, chiefs of Illinois division nights, are unexcelled. These gentlemen are athletic and are always in fine trim. Great strength makes good nature and perfect health. Their advice to their friends is: "Exercise, and success will be yours."

DALLAS, TEX., WESTERN UNION.

Our assistant day chief, Mr. Jas. C. Langley, has been appointed manager at Beaumont, Tex.; assistant night chief, Mr. W. W. Hoskins, succeeds Mr. Langley, and traffic chief, Mr. Geo. M. Hodges, succeeds Mr. Hoskins. Mr. W. S. Strawbridge has been promoted to be traffic chief.

Departures: Mr. Edward Davis, for his home in Ohio; Mr. Ralph Briggs, for Chicago; Mr. W. J. Wilhoite, for Houston, Tex.

Resignations: Mr. Samuel Moore, who is now with the Postal here, and Mr. T. L. Heston, who has gone to Muskogee, I. T., to work in a broker's office.

Assistant Superintendent G. C. Felton and his clerk, Mr. W. B. Kendall, and Mr. Al. Lucas have returned from Beaumont, Tex.

Mr. Frank Vaughan has left for Corsicana, Tex.

The operators of this office are as follows: R. B. Allender, C. S. Aycock, W. J. Clark, James R. Harman, D. H. Hawley, E. E. Jackson, Roy Montgomery, H. A. Mansfield, James McLemore, W. H. Mugford, John Sandford, C. C. Forrest, A. L. Adair, G. P. Brinkley, R. W. Carlton, P. D. Mathis, John Bogan, L. A. Ott, W. G. Stansbury, Elmer Cox, Harry Johnson, J. B. Hardy, C. A. Work, John W. Woodland, C. B. Yost, Edward Fox, Thomas Campbell, P. M. Wilson, A. H. Hickerson, B. A. Clark, W. C. Long, F. C. Tigner, P. L. Bradley, N. P. Warren, W. G. Jamison, George Littlejohn, George Hutton, C. M. Rapp, C. C. Cook, H. Hopkins, W. H. McKinney and T. G. Crowder.

NEW BEDFORD, MASS., NOTES.

Oscar Bowen, formerly with the Western Union Telegraph Company at Providence, R. I., but for the past year electrician and general superintendent of the Automatic Telephone Co., of New Bedford, Mass., has accepted a similar position with the Fall River Automatic Telephone Co. On the day of Mr. Bowen's departure for Fall River he was presented on behalf of the company and employees a handsome gold watch and chain. The inscription on the watch bespeaks the high esteem in which he was held by his former associates.

Mr. Joseph T. Winslow, formerly with the Western Union Telegraph Company at New Bedford, Mass., has been appointed manager of the Vineyard Haven, Mass., office of the Martha's Vineyard Telegraph Co.

Hyannis, Mass., until recently the telegraph headquarters of the consolidated railroad and its branches south of Middleboro, Mass., has been deserted (telegraphically), the train dispatcher's office having been moved to Buzzard's Bay, Mass. Mr. E. E. Field, for many years with the railroad, remains at Hyannis with the Western Union. At Buzzard's

STATE OF OHIO, CITY OF TOLEDO, } ss.
LUCAS COUNTY. }

FRANK J. CHENEY makes oath that he is senior partner of the firm of F. J. CHENEY & Co., doing busines in the City of Toledo, County and State aforesaid, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of CATARRH that cannot be cured by the use of HALL'S CATARRH CURE.

FRANK J. CHENEY.

Sworn to before me and subscribed in my presence, this 6th day of December, A. D., 1886.

{SEAL} A. W. GLEASON,
Notary Public.

Hall's Catarrh Cure is taken internally, and acts directly on the blood and mucous surfaces of the system. Send for testimonials, free.

F. J. CHENEY & CO., Toledo, O.

Sold by druggists, 75c.

Hall's Family Pills are the best.

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Bay J. N. Smith is chief dispatcher, with W. A. Perry night chief. The assistants are J. Wood, Will Hart and Anna Smith. The French Cable Company's test office here is in charge of Mrs. Wm. A. Gidley.

Some one has dared send a congratulatory message outside the stereotyped form. It was a pleasure to hear the following: "On this day of felicity, I congratulate you by electricity"; and still another passed through our hands a few days since: "A pleasant reminder of what happened in May, just twenty-three years ago to-day."

PHILADELPHIA, PA., WESTERN UNION.

Mr. J. B. Hiestand, of this office, was married recently to Miss Lizzie Zendt, of North Wales, Pa. The AGE and many friends extend congratulations and best wishes.

Mr. J. C. Mullin, who has been with us for a number of years, has resigned to go with this company at Pittsburg, Pa.

The strawberry message rush is on us and everybody is on the qui vive.

After a week's sojourn in the South, E. A. Maaske is with us again.

Other arrivals: F. R. Rose, Huntingdon, Pa.; C. E. Mapes, Philadelphia.

Owing to the death of his venerable father, J. S. W. Philips was absent for a week.

The twentieth wedding anniversary of Mr. and Mrs. John H. Sisk occurred May 10. The event was celebrated by them at their residence, where, it was said, Stephan Girard once lived. Mr. Sisk, who has been one of us for many years, is also a prominent politician and has a host of friends. The gathering therefore was a large and noted one. The feature of the evening was the fine singing and playing of Miss and Master Sisk. The concert program was a splendid affair, made up of both professional and amateur talent, which was greatly appreciated. The menu was all that could be desired. Dancing was also arranged for those who cared for that pleasure, while a minstrel orchestra discoursed sweet music on the lawn, which was aglow with light from many colored lanterns. Mr. and Mrs. Sisk were the recipients of many handsome and costly presents. May they celebrate many more such anniversaries.

NEWPORT, R. I., WESTERN UNION.

Mr. Daniel E. Harrington has accepted a position with a broker here.

Mr. Joseph Riley is running the Metropolitan Stock Exchange here with E. F. Sullivan as operator, late with E. L. Doucette.

Night Manager R. R. Rowe has returned from a week's visit to Gettysburg.

PHILADELPHIA, PA., POSTAL.

Chief Operator C. A. Stimpson has evolved another ingenious invention out of his fertile brain. This time he applies instruments to ordinary Morse wires and at once provides an additional circuit without in any way interfering with other signals.

The practicability of the idea has been demonstrated by successful tests on a circuit between Philadelphia and Atlantic City, over which hundreds of messages were handled in a thoroughly satisfactory manner. Besides being able to transmit and receive Morse characters, the operator is also enabled to use the same circuit for ordinary conversation, after the manner of the telephone, without the use of switches or making any change in the installed set.

Mr. P. V. DeGraw, a popular ex-telegrapher, now with the Columbia Phonograph Co., was a recent visitor who became especially interested in Mr. Stimpson's new invention. Our officials at the New York headquarters were also promptly represented by Mr. M. M. Davis, who quickly recognized its merits and adaptability.

Mr. W. T. McCorkle is now known as the "time-keeper," not, however, of the time-book—he watches the Washington wire and announces time at noon.

Mr. Frank Williams, of the first Chicago, is enjoying the benefits accompanying his new position at a broker's office. Mr. Frank Holloway, his side partner, is likely to be the next favored, judging from the frequent calls made upon him for outside service.

Messrs. Edward Addleton and J. J. McCarty have resigned, the former returning to Hawley, Pa., the latter going to New York.

The night force has lost three very good men, Messrs. James Madden, Albert Weiss and Frank Yhost, all newspaper men, they having taken up new positions with stock brokers.

New faces are much in evidence these days. Among the latest arrivals are Messrs. William Anderson, H. C. Kline, R. Ziegler, J. F. Haughton, Wm. B. Kearney, L. D. Evans and J. J. Horner.

The "roast" in the morning on the berry wires through the Virginia Peninsular is very hot, the busy season being fully on.

This office enjoys the distinction of having the tiniest messenger boy in the city. He is Master Harrison Reidenbach, whose height just reaches the top of a yard stick; but what he lacks in size is made up in tidiness, attention and activeness. He is very popular.

Mr. Jacob Hope, manager of the Eighteenth street and Allegheny avenue branch office is absent on a sick leave.

NEW YORK WESTERN UNION.

Mr. R. H. Morris, mechanical engineer, has moved his office from the rear of the seventh floor to the electrical engineer's office, on the fourth floor, to make room for the Buckingham system, which has become a part of the Wheatstone department.

Mr. Martin Durivan has gone to West End, Long Branch, N. J., to open the summer offices.

Mr. George A. Newton is at the race tracks for the summer.

Captain Kirtland, of the Jerseys, has been on a trip to Hinton, Va., to visit his wife, who is ill at that place.

Mrs. Cora A. Hastings-Mauer, who was injured by a railway collision on the Brooklyn Bridge, May 20, is now in the Memorial Hospital, Brooklyn, and slowly improving.

Mr. Henry W. Sauer, president of the New York

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Telegraphers' Aid Society, has, on account of poor health, impaired by too close attention to duty, gone to Sullivan County, N. Y., to recuperate.

Mr. M. F. O'Neill went to Baltimore, Md., to attend the funeral of his mother, who died there May 22. The sympathy of all is his.

Mr. James S. Hunt, of the Western Union, San Francisco, Cal., came East to Bridgeport, Conn., to see his sister, who was ill. She died the day after his arrival. He will remain East for a few weeks.

Mr. Frank Saffel has left for a visit to his old home, Bennings, D. C.

Mr. George S. Brown, who left here a year ago for the benefit of his health, states in a recent letter that he is working at Redlands, Cal., and is doing well.

Appointments to waiting list: D. Brown, J. J. Hope, Thos. P. Murphy, M. Caspery, J. J. McDonough. Junior operators: J. E. Brennan, J. F. Fitzpatrick. To regular force from waiting list: L. W. Sitzenstatter, W. M. Butte, J. H. King. New appointments: Miss W. H. Heinbecker. Resigned: E. P. Dempsey, F. L. Gerber.

Mr. J. Curley Watts, of the night force, has a son, born May 3.

Mr. Harry B. Rathbone, of the editorial staff of the New York Journal, is the father of a daughter, born May 18.

Mr. Fred Catlin, of the quadruplex department, one of the best known operators in the United States, has resigned, to enter other business.

DES MOINES, IA., NOTES.

Mr. R. G. Williams, operator, has resigned from the Postal, and accepted a position at Oelwein, Iowa, where he is now located with the Chicago Great Western Railway and the Postal Telegraph-Cable Company.

Harry Kern is still in charge of the delivery department of the Postal.

Manager C. F. Ames, of the Western Union, says TELEGRAPH AGE is O. K.

The veteran Thad Schnell, agent for this paper at Des Moines, has just sent in a nice list of subscribers. He says the older the AGE grows the better 'tis.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

CHICAGO, ILL., POSTAL.

Mr. E. R. Sherman has been working at The Associated Press during past few weeks in the absence of Mr. Allen.

Mr. T. H. McMahan has recently returned from Des Moines, Iowa, where he has been taking report for The Associated Press.

Miss Jenny Sanborn returned to-day from Mississippi, where she has been enjoying a few weeks' vacation.

Mr. Harry Dengler, assistant to Mr. Durand in the New York division, has been looking a little worse for wear of late on account of moving.

Mr. George Pierce, for years at the Board of Trade, has been favored with a straight day trick and is working the Pittsburg local, vice J. G. Hoy, who has taken another trick.

Mr. F. B. Otto was assigned to aid Mr. W. F. Lincoln in untangling the loops and the installation of the new card system used on all the city loops, which was adopted after the fire in the terminal room some time ago. Although the duties connected with the work were somewhat disastrous to the hands and face, the instruction gained therefrom will make Mr. Otto a valuable man in that department.

Mr. A. W. Evans has been assigned to the cable wire, vice Mr. Moran, taken a 11.30 split trick.

The "Pump handle" key, as it has been called here, or the twentieth century key, as it is shown on last page of the May 16 issue of the AGE, has been used in this office considerable of late, and among those who recommend it is Mr. John Kenny, who pronounces it a grand success. Wire Chief A. B. Carroll owns the machine, and it is always on exhibition.

Mr. W. E. Blizzard has just returned from a two weeks' vacation in Ohio. He was relieved at the Journal by Mr. Arthur Lassman.

Messrs. Lee Williams, F. C. Williams, Richard Ahlers and Edward Groth have been added to the regular force.

Mrs. Theidie has returned from a short vacation.

Among the new arrivals are: Miss Hulan and Messrs. F. W. Campion, G. B. Guthrie, David Duff, Codd, Tockstein, Sheldon, Combs, McCann, Drummond, Quinn and Diefendorfer.

Departures: Messrs. John Daley, Shrum, Atherton, Arthur Lassman, Arthie Rainey, Harry Ginsburg, Louis Russell and Brierton.

Don't Knock.

Another good thing comes out of Buffalo, a town entitled to exalt its horn. Last week the Commercial Travelers' Association gave a hearing to Mr. Maurice H. Case, supreme president, and Mr. Clarence H. Lavery, supreme secretary and treasurer, of the Order of Don't Knock, which was incorporated March 20. The charter members are Buffalonians. Every person who joins the order solemnly binds himself to pay a fine of one cent every time he is caught "knocking." The proceeds of the fines are to go to charity.

"To knock" is beginning-of-the-century English for "to backbite," to "speak ill of." It is the purpose of the new society to repress a habit which is altogether too common and springs sometimes from thoughtlessness as much as from malice. Sometimes it seems to be infectious. Let somebody in any company begin to say mean or unkind things of some absent person, and ten to one some-

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body else will take up the tale and add spite to spite. It ought to be as easy to speak good as to speak evil of your friends and acquaintances, but notice how a sneer, an unjust criticism, a scandalous story is rolled along from tongue to tongue, gathering venom in its passage. Some cynics say frankly that they don't scruple to "talk about" their friends because they know that their friends don't scruple to "talk about" them. A scurvy plea, as if Tom must be a sneak and a gossip because Dick and Harry are.

The amount of suffering that is caused by tattling, backbiting and "they say," especially in small communities where everybody knows everybody and every word of depreciation or scandal is sure to reach its mark, is incalculable. You can hardly take up a newspaper without finding in it some story of desperate affray or suicide or murder, of somebody done to death by poisoned tongues. But even these positive and palpable results of "knocking" are not so sinister as the effect of it upon the hardened though perhaps unconscious practicer of it. He or she, acquiring the censorious, snooping, backbiting habit, becomes a nuisance and a curse, a mere bag of bile and jaundice, a collector of the offal of ill nature. In some cases "knocking" becomes an incurable disease, but in its earlier stages it yields readily to such treatment as the Don't Knock Order proposes. The objects of the order are thus described in its constitution:

"Section 1—To overcome in its members the deplorable habit of speaking ill of our fellows—otherwise known as 'knocking'—and by precept and example trying to induce others to do the same.

"Section 2—To better the social and moral condition of mankind by a true devotion in its members to the cause of charity in its broadest sense.

"Section 3—To keep the Golden Rule ever in the minds of its members.

"Section 4—To bind its members together in a social and fraternal manner."

And here is a little bit of the healthful creed:

"We believe that the practice of speaking ill of our fellow-men, otherwise 'knocking,' is detestable, unbrotherly and uncharitable.

"We believe it our duty to conceal the imperfections of our fellows (provided their actions are not of great menace to the welfare of the community), and do all we can by precept and example to show them where they err.

"We believe that many lives are ruined daily, that many hearts are made miserable and many men and women driven to desperation by the despicable practice of 'knocking.'

"We believe that in most instances 'knocking' is done thoughtlessly, and even those who knock maliciously and with evil intent would refrain if they would but give a thought to the possible consequences of the act.

"We believe that a simple little knock unthinkingly made sometimes grows to such proportions as to be more cruel and dangerous than the plunging of a sharp knife into the vitals of the victim.

"We believe that a persistent, deliberate knocker is as vile and as dangerous to the welfare of a community as a murderer.

"We believe that many people judge others by their own standard, and that because they are not tempted or are able to resist doing some particular thing that they consider wrong, they feel themselves warranted in despising and criticizing those who are weaker than themselves or whose opinions differ with their own."

Don't "knock," and don't "rubberneck" to excess.—New York Sun.

Among the telegraphic devices exhibited at the Pan-American Exposition, at Buffalo, N. Y., that contributed by Patrick B. Delany, the electrical engineer and telegraph expert of South Orange, N. J., showing an improved system of high speed automatic telegraphy, is calculated to attract wide attention. This is because of its great inherent possibilities, particularly in regard to its flexibility of operation and the ease with which its manipulation may be acquired by any operator. It is a punching device of modified simplicity in construction, operated by the Morse key, and is capable of recording messages on chemically prepared tape in the usual dot and dash style at a rate as high as 2,000 words a minute, if necessary.

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Information is desired relative to Joseph D. McDonald, who about six years ago worked for the Postal Telegraph-Cable Company at Boston, Mass.; his whereabouts if alive, and if dead, the place and date of his death. Address J. T. Moran, chief operator, Western Union Telegraph Company, Providence, R. I. (Adv.)

Readers of the TELEGRAPH AGE are referred to the advertisement of the Montauk Cable Company on page two of the front cover. (Adv.)

The Modern Service of Commercial and Railway Telegraphy (8th Edition, revised and enlarged), by J. P. Abernethy. The theory and practice, including railway station and express service. Arranged in questions and answers. 425 pages, 40 illustrations. Price $2.00, expressage prepaid. Address John B. Taltavall, The Telegraph Age, 253 Broadway New York.

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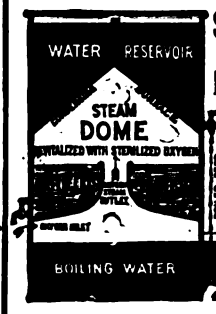
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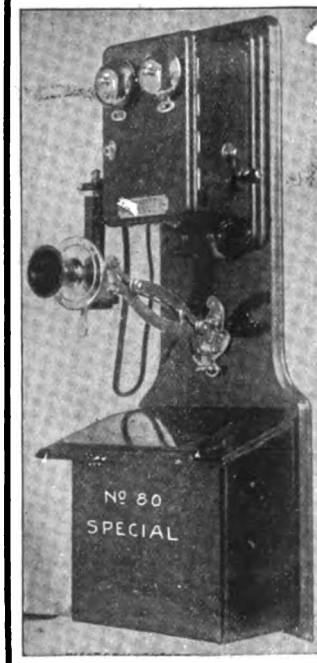
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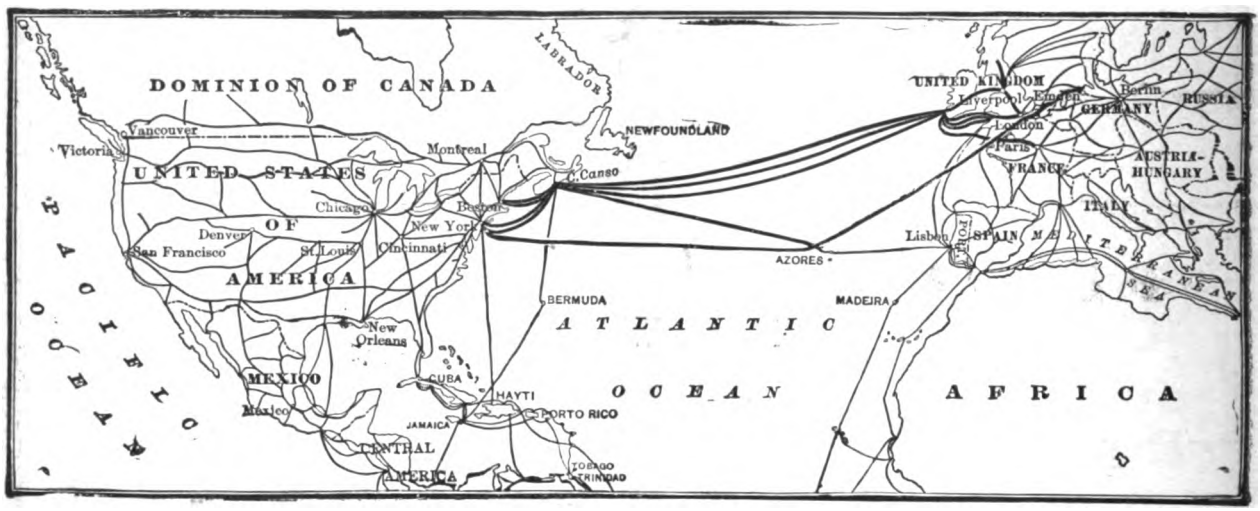
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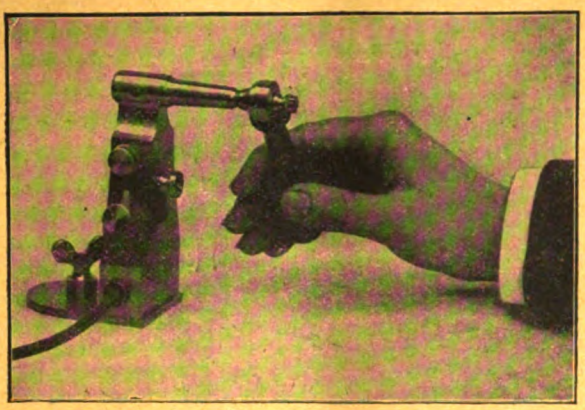
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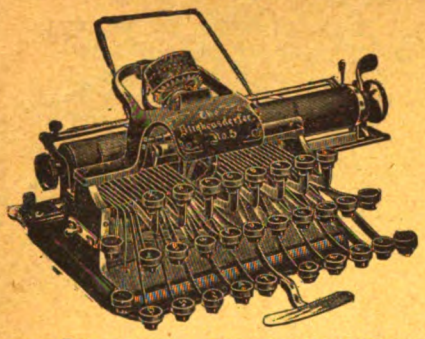
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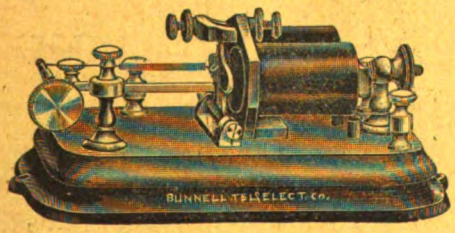
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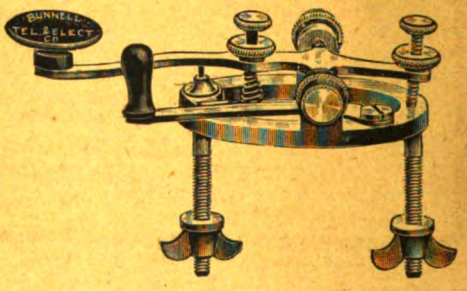


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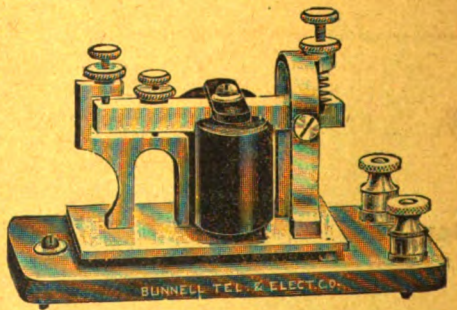


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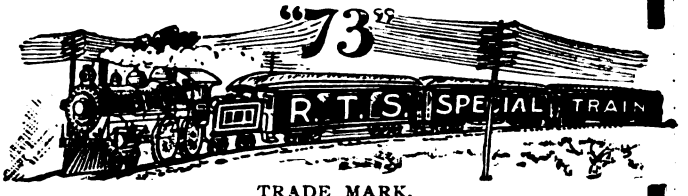
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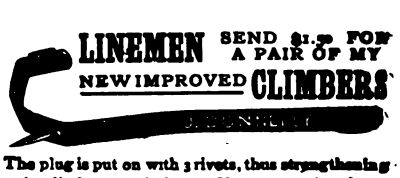
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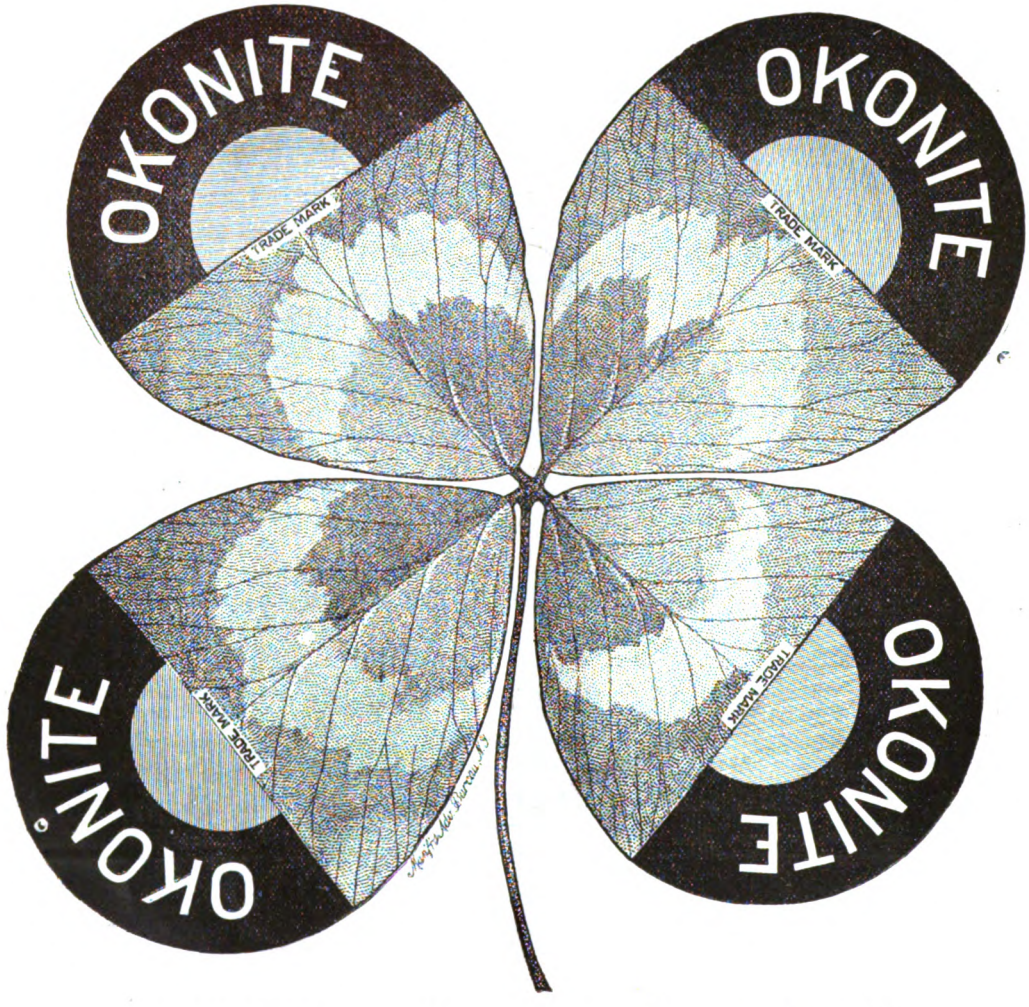


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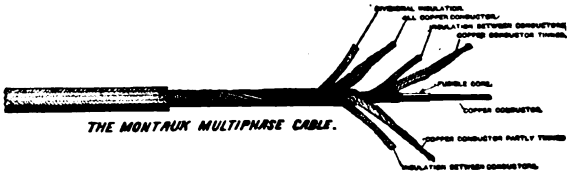
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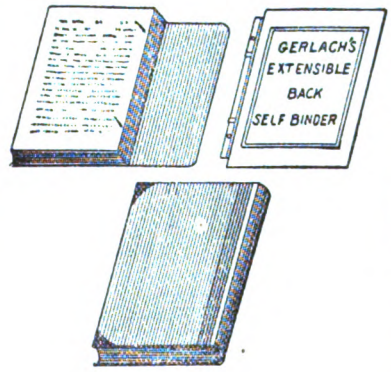
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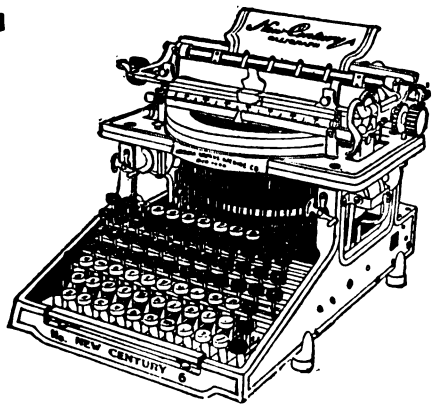
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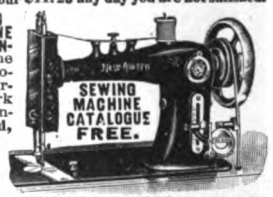


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THE TELEGRAPH AGE.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

During the past three months four different writers have requested this journal to state the minimum number of volts required to produce death by electrocution in a human being.

It would be impossible to answer the correspondents satisfactorily with the question put in that form; in fact, no electrician would attempt to give an approximate figure without a thorough knowledge of the physical condition of the victim and the manner in which the electric power is to be applied, and the connections made. Records have been kept which show that death has been caused by as low as 50 volts (probably from fright), while one man actually withstood 2,000 volts for several minutes and recovered.

The fact is that it is current that kills, not voltage, hence although the latter regulates the value of the former in every circuit, it follows that to produce a given strength of current in bodies of different resistances the value of the electromotive force alone must be regulated by Ohm's law, RXC=E.

It is generally believed that one-half to one ampere of current flowing through the vital portions of one's body will usually produce almost instant death.

It has been found that the resistance of human bodies of average size, measured lengthwise, varies between 5,000 and 20,000 ohms, according to the thickness, hardness, and moisture of the skin, and other physical conditions at the moment the electric charge is received.

From this it will be seen that it would require four times the voltage to produce a given strength of current in a person of maximum resistance as it would in the minimum body. Again, as the resistance of any part of a body is less than that in its entirety, it is also evident that if the direction of the charge be across or through the center of the body—say in line of a vital organ—a comparatively small voltage will cause the strength of current in that circuit to be equally as dangerous, as one due to a greater pressure but having the full length of the body to overcome would be in the longer route.

With this explanation the reader will readily understand the "miraculous escapes" (according to newspaper accounts) of persons who were credited with having received the "full charge" of thousands of volts of electricity. The fact is that owing to imperfect contact with the wire due to partial insulation of clothing, dry shoes, or other substance, the total resistance of the circuit through the body was so great that the current resulting from E divided by R was insufficient to prove fatal.

The various explanations which have been offered to decide the exact manner in which electricity causes death show that medical experts differ in opinion to a great degree on many points, but the fact has been pretty well established that a current has a direct disintegrating effect on the brain and nerve tissues. It seems that death by electric shock is due to the fact that the current produces a contraction of the arteries through its influence on the nervous system, which constriction throws in such a mechanical impediment to the flow of blood as the heart cannot overcome.

At Auburn and Sing Sing the electromotive force employed for legal electrocution is but about 1,800 volts, direct current, but it must be remembered that the resistance of the human circuit is greatly reduced by first moistening the skin and seeing that electric contact with the body is perfect.

A peculiar characteristic of electricity is that a current due to the electromotive force of an alternating machine of ordinary commercial frequency is nearly three times as dangerous to life as a direct current of the same amperage would be; yet when the rapidity of such alternations are enormously increased the danger decreases with the rise until a point is reached where the effect upon the human tissues is harmless.

A correspondent signing "W. H. A." asks the following question:

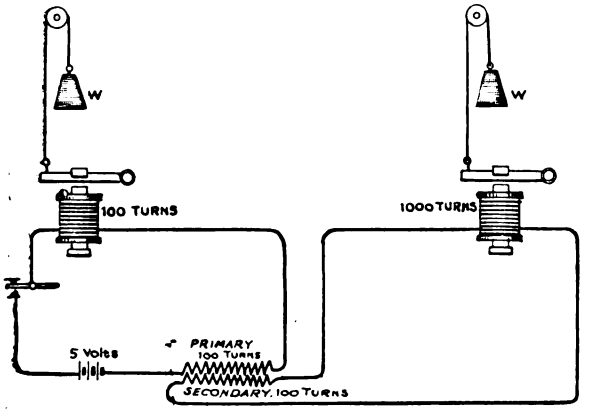
"If a primary circuit with five volts and one hundred turns of wire on the magnet has a lifting power of five pounds, will a magnet of 1,000 turns in a secondary circuit have a greater or less lifting power? How much and why?"

Arranged as per diagram, the lifting power of the magnet in the secondary circuit would be very insignificant compared with that in the primary,

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because the current in the former circuit flows but momentarily, while that in the primary is sustained so long as the key remains closed.

The inquirer evidently has in mind the action of an alternate current in the secondary of a transformer circuit. Here the effect and strength of the current in each circuit would be approximately the same provided the size of wire and number of convolutions of copper in the primary and secondary coils are identical, that is to say, five volts e. m. f. would feed each circuit.



The strength of a magnet is found by multiplying the current flowing in the circuit by the number of convolutions of wire in its coil. Our correspondent has not mentioned the resistance of either magnet coil, but assuming that all coils are of the same gage wire and that each coil offers one ohm resistance (disregard transformer resistance to simplify the figuring), then the exciting current in the primary circuit magnet will be $\frac{5\ E}{100} \times 100$ turns $= 5$ amperes.

In the secondary circuit magnet it will be approximately the same $\frac{5\ E}{1{,}000} \times 1{,}000$ turns $= 5$ amperes.

Of course we can never get quite as much out of a secondary circuit as we put in the primary on account of the heat loss due to the operation of the transformer, but it should not exceed five or ten per cent.

Coming Conventions.

The Association of Railway Telegraph Superintendents, at Buffalo, N. Y., June 19, 20, 21.

The International Association of Municipal Electricians, at Niagara Falls, N. Y., September 2, 3, 4.

The Old Time Telegraphers' Association and the United States Military Telegraph Corps (jointly), at Montreal, Quebec, September 11, 12, 13.

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The New Edison Storage Battery.*

BY DR. ARTHUR E. KENNELLY.

It is well known that the history of the storage cell is essentially that of the lead cell discovered by Plante in 1860, in which lead peroxide is the depolarizing substance. An enormous amount of labor has, in the aggregate, been expended upon the improvement of this cell in the hands of experimentalists. As a result of that labor, the storage battery has at last become a recognized adjunct to direct-current central stations, but it has limitations that seem to withstand further attempts toward improvement. Of recent years, hardly any success has been met with in the direction of reducing its weight for a given energy-storing capacity, without detriment to endurance, and this weight is the great drawback of the storage battery in electric storage traction, and has been the principal obstacle to its advance in this direction for the past twenty years.

In practice the storage energy per unit mass of the modern lead battery, is from four to six watt-hours per pound of battery (8.8 to 13.23 watt-hours per kilogramme). Expressed in another way, a battery weighs from 124.5 to 186.5 lbs. per horse-power-hour at its terminals (75.5 to 113.4 kilos per kilowatt-hour); or, if its stored energy available at terminals were all expended in gravitational work, a battery could raise its own weight through a vertical distance of from two to three miles (3.2 to 4.8 kilometers).

While it is possible to increase the energy per unit mass by making the electrodes very light, yet this is always found to be followed by a very heavy deterioration.

Many attempts have also been made to perfect storage cells of the alkaline-zincate type, but the great difficulty of depositing zinc in coherent form from the solution, as well as the lack of a depolarizer that shall be insoluble in the electrolyte, has stood in the way of this cell's success.

Mr. Thomas A. Edison set himself the task of finding a cell which should possess the following advantages:

1. Absence of deterioration by work.
2. Large storage capacity per unit of mass.
3. Capability of being rapidly charged and discharged.
4. Capability of withstanding careless treatment.
5. Inexpensiveness.

He believes that the cell here shown may claim these advantages in a very satisfactory degree. The negative pole, or positive element, corresponding to the zinc of a primary cell, or the spongy lead of a secondary cell, is iron. The positive pole or negative element, corresponding to the carbon of a primary cell, or lead peroxide of a secondary cell, is a superoxide of nickel believed to have the formula NiO_2. The cell is therefore a nickel-iron cell, a name which suggests the struct-

*A paper presented at the Eighteenth Annual Meeting of the American Institute of Electrical Engineers, New York, May 21, 1901.

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ural material—nickel-steel. The electrolyte is potash; viz., an aqueous solution containing from 10 to 40 per cent by weight, but preferably 20 per cent of potassium hytroxide, the freezing temperature of which is 20 degs. below zero F. or—30 degs. C.

The initial voltage of discharge after recent charge is .....1.5 volts

The mean voltage of full discharge is approximately.....1.1 volts

The normal discharging current rate per unit area of active element (positive or negative)

is.....60 $\frac{\text{milliamperes}}{\text{sq. inch.}}$

or.....8.64 $\frac{\text{amperes}}{\text{sq. foot.}}$

or.....0.93 $\frac{\text{amperes}}{\text{sq. decimeter.}}$

The storage capacity or the cell per unit of total mass of the cell is 14 watt-hours per pound of battery.

or.....30.85 watt-hours per kilo

Expressing the same statement in another way, the weight of battery per unit of electric energy at terminals is.....53.3 lbs per e. h. p. hour

or.....32.4 kilos per kilowatt-hour

Or the battery gives energy at its terminals sufficient to lift its own weight through a vertical distance of approximately,

7 miles or 11.26 kilometers.

The mean normal discharging power-rate per unit mass of total cell is.....

.....4 watts per pound or 8.82 watts per kilo

Corresponding to a normal discharge period of .....$3\frac{1}{2}$ hours

The cell may, however, be discharged at a relatively high rate, in approximately..... hour

Corresponding to a discharging power rate per unit of total cell mass of.....

....12 watts per pound or 26.46 watts per kilo.

Charging and discharging rates are alike. That is to say, the cell may be charged at the normal rate in $3\frac{1}{2}$ hours; or, it may be charged at a relatively high rate in one hour, with no apparent detriment beyond a somewhat lowered electrical charge efficiency. In other words, the cell does not appear to be injured by overcharging or discharging, and only suffers in electrical efficiency under such treatment.

The positive and negative plates are mechanically alike, and can scarcely be distinguished by the eye. They differ only in the chemical contents of their pockets. The samples here exhibited, which are intended for automobile batteries, illustrate the construction. Each plate is formed of a comparatively thin sheet of steel, 0.024 inch (0.61 mm) in thickness, in which rectangular holes are stamped, so as to leave a grid or frame somewhat resembling a window-frame. In the plate there are three rows of eight rectangular holes or recesses, or 24 recesses in all.

Each opening or recess is filled with a pocket or shallow box containing the active material. These boxes correspond to the panes of glass in the window-frame analogy. The panes instead of being thinner than the frame, as in an actual window, are thicker than the frame, or project slightly beyond the surface of the steel grid. They are perforated with numerous small holes to admit the electrolyte, but entirely conceal the contained active material from view. All that meets the eye, therefore, in any of the plates, is the steel frame, and its embedded "windows" of perforated steel.

The active material is made in the form of rectangular cakes or briquettes, and one such briquette is lodged in each pocket or "window pane" of the plate. Each of the plates shown, therefore, supports, or contains, 24 briquettes of active material, all in rigid contact with its own substance.

Each briquette is placed in a shallow, closely fitting nickel-plated box of thin perforated crucible steel, cut from a long strip of that material 0.003 inch (0.075 mm.) thick. A cover or lid of the same material is then laid over it, so that the briquette is closely enveloped by the sides and walls of its perforated steel box. The boxes are then placed in the openings or holes in the nickel-plated steel grid, and closely fit the same. The assembled plate is then placed in a hydraulic press, and subjected to a total pressure of about 100 tons. This pressure not only tightly closes the boxes, but it also forces their metal sides over the adjacent sides of the recesses in the steel grid, thus clamping the whole mass into a single solid and rigid steel plate with the hollow "window panes" full of active material. The nickel-plating of both grids and boxes aids in securing good permanent electric connections between them. The finished plate has a grid thickness of 0.024 inch (0.56 mm.), and a "window" or pocket thickness of 0.1 inch (2.5 mm.) This is the maximum thickness of the plate at any point, but being of steel, the plate has ample rigidity.

The positive briquettes (zincs of a primary cell) are made by mixing a finely divided compound of iron obtained by a special chemical process with a nearly equal volume of thin flakes of graphite. The graphite does not enter into any of the chemical actions, but assists the conductivity of the briquettes. The graphite is divided into very thin laminæ by a chemical process, and these are passed through sieves or screens so as to leave a size or area of flake that is much larger than the area of the perforation in the steel windows. The mixture is then pressed into briquettes in a mould, under a hydraulic pressure of about two tons per square inch. The briquettes have a surface area of nearly three inches by one-half inch on each face.

The negative briquette (carbon of a primary cell) is made by similarly mixing a finely divided compound of nickel, obtained by special chemical means, with a nearly equal bulk of fine flakes of graphite and solidifying the mixture in a mould into briquettes of the same size as above.

A suitable number of positive and negative plates are assembled together, being separated from one another only by a thin sheet of perforated hard rubber.

The assembled plates are placed in a vessel nickel compound, oxidizing it to the hyperoxide of nickel, $Ni\ O_2$, a higher oxide than the peroxide. In other words, the charging current simply carries oxygen

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in the opposite direction against the forces of chemical affinity, from the iron to the nickel, and stores the energy in the reduced iron, which is, of course, unaffected and passive in the presence of the potash solution. On discharge, the current passes from the positive pole through the external circuit to the negative pole, and its attached iron or positive plate, and then through the solution to the negative or superoxide plate. In so doing the oxygen moves back against the current and partially reduces the nickel superoxide NiO_2 while oxidizing the spongy iron. The energy of burning of the iron and oxygen which would be developed as heat in the ordinary chemical process is now liberated in the circuit as electrical energy.

The cell is an oxygen-lift. Charging pulls the oxygen away from the iron and delivers it temporarily to the nickel. The condition is then stable, until the circuit of the cell is completed. Discharge then allows the oxygen to fall back from the nickel to the iron with the natural affinity of iron and oxygen.

This action is very different from that which takes place in the lead storage cell. Here, neglecting complications, the action is usually regarded for practical purposes as being represented by the equation

$$PbO_2+2H_2SO_4+Pb=PbSO_4+2H_2O+PbSO_4+$$
100 watt-hours,

where the left-hand side represents the condition of charge and the right-hand side the condition of discharge. Here oxygen is not simply transferred in discharge from the peroxide to the spongy lead, but the solution is changed (theoretically) from an aqueous solution of sulphuric acid to plain water. Of course, the discharge could not practically be carried to the point of denuding the solution of all sulphuric acid, and a surplusage of acid must be used. The equation gives a mere theoretical outline of admittedly very complex reactions. In other words, the specific gravity of the sulphuric acid solution falls during the discharge, and the solution enters into the chemical combination. Theoretically, for every 445 grammes of active material on both plates, 196 grammes of sulphuric acid are required to effect the combination, or 44 per cent by weight of the active elements, and in practice it is usual to allow a weight of sulphuric acid nearly equal to half the weight of the elements, or about one-quarter of the total weight of the cell.

In the new Edison cell, on the other hand, the theoretical action of the potash solution is merely to provide the proper channel through which the oxygen ions may travel in one direction or the other—positive plate to negative plate in charge, and negative plate to positive plate in discharge. Consequently, the amount of solution needs only to be sufficient to fulfil mechanical requirements. It is believed that the weight of solution will in practice be only about 20 per cent of the plate weight or about 14 per cent of the cell weight. In fact, the cell may be worked in the same manner as the so-called primary "dry-cells." Moreover, if the solution should escape, or be carried away, by gasing in charging, the only detriment seems to be the loss of the active surface thereby occasioned, and it will only be necessary to fill up the cells to the proper level with water from time to time, as evaporation or gasing may lower the level. For the same reasons the specific gravity of the electrolyte does not appreciably vary during charge and discharge.

The briquettes of active material slightly expand on receiving oxygen, and slightly contract on delivering it; that is to say, the iron briquettes contract and the nickel briquettes expand during charge, while on discharge the iron briquettes expand and the nickel briquettes contract. The level of the solution is in this way scarcely affected. The expansions and contractions of the briquettes appear to be well within the elastic limits of the spring-steel containing boxes, and consequently the electric contact is always secure. The covers or sides of the window pockets merely approach to or recede from each other slightly during charge and discharge. Fortunately, steel is the metal which possesses this mechanical elasticity in a marked degree.

The action of the charging and discharging current upon the briquettes seems to be transferred from their external surfaces inwards in a manner similar to the transfer of carbon and oxygen in the process of making malleable cast iron in the furnace on the principle of cementation. No active material has been found to be ejected from the briquettes through the window perforations, even under the deliberate overcharging and discharging. Such gas as is thereby produced makes its appearance on the external surface of the windows.

If the nickel compound had no affinity for oxygen, so that energy was neither developed nor absorbed in the deoxidation of further oxidation of that substance, then the energy would be entirely that due to the energy of combination or oxygen and iron, stated to be 79.7 watt-hours, and representing an e. m. f., theoretically obtainable, of 1.47 volts. If the combination of oxygen with the nickel compound be exothermic or energy-releasing, then the watt-hours delivered (and the e. m. f.) will be lessened by the energy necessarily paid back to break up the combination.

If, on the other hand, the combination is endothermic or energy-absorbing, then the watt-hours delivered (and the e. m. f.) will be increased by the energy restored on breaking up the combination. Since the superoxide seems not to have been known hitherto, no information concerning its energy of combination is obtainable. The e. m. f. of the cell seems to be so near to that of the union of iron and oxygen as to suggest that the nickel superoxide is not far from being neutral, or that the nickel compound has but little affinity for oxygen, although the superoxide appears to be quite stable in the cell.

The new cell does not seem to be appreciably influenced by changes of temperature, and should stand a very low temperature without detriment. The electrolyte—potash—does not attack any of the ingredients of the cell, nor are any of the in-

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gredients soluble therein. No local action occurs in the cell so far as has yet been observed since the e. m. f. is below that necessary to decompose water.

The cell may be fully discharged to the practical zero point of e. m. f. without detriment. In fact, a cell has not only been completely discharged, but recharged in the reverse or wrong direction, and after bringing it back to its originally charged state by proper restoration of the direction of charging current, the storage capacity remained unaffected. It would seem, therefore, that the cell should be capable of withstanding much abuse.

Mr. Edison states that the negative plate (nickel) either charged or discharged, can be removed from a working cell, and dried in the air for a week, without appreciably injuring it, and when the plate is finally replaced in the cell its charge is practically undiminished.

The positive (iron) plate, if similarly removed from the cell will be likewise uninjured, but it soon loses its charge by the oxidation of the spongy iron with accompanying liberation of heat and appreciable rise of temperature extending over a period of several hours. On replacing the electrode, however, in the cell the storage capacity is unaffected on recharge.

As regards cost, Mr. Edison believes that after factory facilities now in course of preparation have been completed, he will be able to furnish the cells at a price per kilowatt-hour not greater than the prevailing price of lead cells.

Having now considered the action and properties of the cell, a brief description may be given of the difficulties encountered in developing it.

The phenomenon of passivity has probably kept inventors from finding this cell in the past. Mr. Edison believes that of all the very numerous compounds of iron, and of which he has tried many hundreds, the particular compound which he prepares, is perhaps the only one capable of being used in this way.

If the dried hydrates, or oxides of iron native or artificial, are subjected to electrolytic reducing action in any alkaline solution, they remain inert and unaffected.

On the other hand, if finely divided iron obtained by reducing a compound of iron under the action of a reducing agent, such as hydrogen, or carbon monoxide is subjected to electrolytic oxidation in an alkaline solution it is inert and cannot be oxidized. It assumes the well-known passive state.

The same difficulty of passivity affects the use of nickel or the negative element. Finely divided nickel, reduced from a nickel compound, remains inactive when subjected to electrolytic oxygen in an alkaline solution. The monoxide and the black-oxide or peroxide are also inert. No oxide of nickel is active or can be made active by electrolytic action, and the peroxide does not act as a depolarizer.

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How Wall Street News is Circulated.

Tape, bulletins, and newspapers—these are the principal channels through which flows information of what comes in and goes out with the uncertain tide of Wall Street. Newspapers twice a day, bulletins every ten minutes, tape all the time—thus the money field is irrigated with the news.

The oddest of Wall Street newspapers is printed on presses small enough to be carried in a hat box. These presses are kept in glass cases, like wax flowers, or ship models, or crown jewels, and are known as Tickers. The Tape is issued every business day, and five hours, 10 to 3, are required to print each issue. When the issue is all printed, it is as long as two city blocks, but only as wide as a postage stamp. You can't buy this newspaper on a news stand, but it has subscribers in every state and territory in the Union. Its publication in San Francisco, Tacoma, Jacksonville and intermediate points is simultaneous with its appearance in New York. It is not a yellow journal, for it prints only the truth. Should it "fake," or guess, or get "beaten" on a story, its circulation would fall off instanter.

Each issue of The Tape contains from 3,000 to 4,000 complete short stories, called quotations, representing stock transactions. Its editor is a keen-witted man, Mr. R. L. Bamford, an old-time and well-known telegrapher, and now superintendent of telegraph of the Stock Exchange, and you can't tell Bamford a thing about an active or torpid market, even if you've grown gray and bald "On the Street." His staff consists of twenty-four reporters and telegraphers. Look sharp when you visit the Stock Exchange and you can recognize these Tape reporters—they are the only men on the floor with gold braid on their caps. Each has to report the transactions in from five to twenty stocks, according to their "activity." Sometimes a reporter can "cover" only one stock; as, for instance, on the panic days a few weeks ago, when dealings in Northern and Union Pacifics were simply overwhelming. It took a single reporter's entire time to keep pace with just one of these stocks. Ordinarily, however, he moves from group to group of brokers, listening, watching, noting.

The instant a sale is made he scribbles on a pad something about as unintelligible as a doctor's prescription, tears off the sheet and hands it to the nearest telegrapher. An expert telegrapher—they are all expert telegraphers, reporters included—is stationed at each of the four corners of the Exchange. The same second in which a reporter hands over a memorandum of a sale the operator clicks it off on a Morse instrument, thus transmitting it to a room at the top of the tower of the Produce Exchange—for it must be remembered that the Stock Exchange, while building its new home, is occupying a part of the Produce Exchange floor.

Only two seconds of time have passed and we now have the record of the sale in the tower room. Here nine men are bunched together at the elbows around a T-shaped table. They are a mighty serious lot. No talking is the rule. Here is the silence of a public library and the solemnity of a secret meeting of anarchists. But they are merely telegraph operators

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with their ears close to instruments that chant the doings of men on 'Change below.

Here are two instruments for each of the four operators downstairs, each message coming thus over two wires to two men; so that if one receiver misses a transaction, his mate has caught it, and there is no necessity for the operator below to repeat. This accounts for eight of the nine men in that solemn gang in the tower. The ninth sits at a keyboard, a sort of typewriter, and as fast as the Morse receivers hand him the memoranda of sales he presses the keys of his queer-looking typewriter and thus transmits the quotation from his sky-room to the central office in the basement of No. 18 Broadway, and at No. 46 Broad street, a block or so from the Exchange.

Four seconds have passed; two seconds more and the quotation will come out on the tape in the offices of a thousand members of the Stock Exchange. In the central offices a man sits at an electric typewriter corresponding to the one in the tower. The same instant in which he receives a quotation from the tower man the central men press keys or electric buttons, which connect with forty circuits of twenty-five wires each; hence when they press the keys of their typewriters the quotations are printed on a thousand tickers at once. Thus, six seconds after a sale, a bid or an offer on the "floor," the particulars are known, not only in the offices of a thousand members of the Exchange, but in the offices, as well, of a thousand non-members in New York, Brooklyn and Jersey City.

Here is an illustration of the rapidity of the process: A broker on the Exchange makes a sale and rushes toward his 'phone to notify his bookkeeper; but before he can get across the floor the news of the sale appears on The Tape in his office. The whole thing is, perhaps, not quite as quick as saying "Jack Robinson," but, if after bidding 80 for Atchison, you stop to say "Mr.—Jack—Robinson," two thousand city tickers, as you utter the last syllable, will print your bid.

The two thousand tickers are fed thus: One-half by the Stock Exchange, which supplies only members, and only those, moreover, having offices south of Chambers street; the second thousand is supplied by the Gold and Stock Telegraph Company to non-members south of Chambers street and to any subscriber, whether a member or non-member, north of the same street.

In addition to the tickers within the city limits, the telegraph company supplies thousands of other tickers in cities all over the Union, and cables quotations besides to the chief cities of Europe. Each city has its central office, of course, with its electric typewriter, as in New York. Thus, like a lightning flash, the news of each Stock Exchange transaction is spread over two continents in the single continuous column of that remarkable newspaper, The Tape.

The doings of the Consolidated Exchange, the Junior Stock Exchange, so to speak, are recorded in exactly the same way by the Stock Quotation Telegraph Company—only The Tape of the Consolidated has not so general a circulation. The business of the Produce, Cotton, Coffee, and other exchanges, as well as the trading in leather and petroleum and other markets, is given publicity by the Gold and Stock Telegraph Company.—Collier's Weekly.

Opening of the Hall of Fame.

As a great many of our readers are probably aware, New York University, at University Heights, has had added to it, largely through the generosity of Miss Helen Gould, a Hall of Fame. This structure is a splendid colonnade 500 feet in length and surrounding circularly the beautiful library building of the University. The Hall of Fame is intended to contain memorial tablets and busts of great Americans, and the selections are made by vote, the electors being themselves a chosen few, leaders in every department of intellectual activity. The cost of the Hall of Fame is said to be about $100,000. Each of the tablets within it is about 10 feet long and 1 foot high, of bronze. The name is carved in large letters, and under each name are a few words of tribute. At the present time the electors have chosen twenty-nine names, and there are, therefore, twenty-nine tablets, which were unveiled on Decoration Day, May 30. Chancellor MacCracken states that the electors will continue to serve, and that according to the terms of the gift, 150 names are to be honored by tablets by the year 2000. The names are divided into seven groups, one of which is called that of scientists, and in this are included the names of Fulton, Morse and Whitney. At the ceremonies on May 30 the Morse tablet was unveiled by Mr. Gano S. Dunn, assisted by Mr. Francis W. Jones, to represent the American Institute of Electrical Engineers, on the nomination of the president of the Institute. The New York Electrical Society was represented by President T. C. Martin and Secretary G. H. Guy, and it is an interesting coincidence that Mr. Jones was the first president of the Electrical Society and Mr. Dunn the president in 1899-1900, so that the society was remarkably well in evidence on this interesting occasion.

The Morse tablet bears this inscription: "Samuel Finley Breese Morse, 1791-1872. I am persuaded that whatever facilitates intercourse between the different portions of the human family will have the effect, under the guidance of sound moral principles, to promote the best interests of men."

Magnetic Club's Summer Outing.

The Magnetic Club, of New York, Francis W. Jones, president, and R. J. Murphy, secretary, will celebrate its regular summer outing on Tuesday, June 25, at Cove Hotel, Livingston station, Staten Island, the festivities of the occasion extending over the afternoon and evening. There will be a dinner served at the hotel, before and after which field and other sports will be indulged in. These affairs, affording such delightful outings to club members, in which good cheer is so abundant and the spirit of jollity and fun enters so largely, have come to be looked forward to with anticipations of much pleasure by all, and no doubt a large number will be present.

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Typewriters at the Pan-American.

Delegates to the convention of the Association of Railway Telegraph Superintendents in Buffalo, on June 19 to 21, will enjoy a visit to the Smith Premier Typewriter Company's booth in the southwest corner of the Manufacturers' Building. It is fitted up with the latest models of typewriting machines, and much interesting and unique advertising matter can be found there. All visitors to the booth will be welcome.

The exhibit at the Pan-American Exposition, Buffalo, of the "New Century" typewriter, manufactured by the American Writing Machine Company, of 302 Broadway, New York, will be found in Section 13 of the Manufacturers' Building. It is an attractively arranged display, and this well-known machine is shown to the best advantage by expert operators in attendance. A cordial invitation is extended to the Railway Telegraph Superintendents during the time of their convention to inspect the "New Century" and to more fully acquaint themselves with the merits it possesses.

Messrs. Wyckoff, Seamans & Benedict have placed an exhibit of the Remington typewriter at the Pan-American Exposition, Buffalo, N. Y. It is located in the northwest corner of section OO on the main aisle, in the Manufacturers and Liberal Arts Building, and railroad telegraph superintendents, during their convention, are especially invited to view the display. They will find an expert operator there ready to serve them in matters of correspondence and the demonstration of what the machine will do in connection with railroad telegraph work. In this relation it is of interest to note that the use of the Remington typewriter in connection with telegraphic train orders is increasing daily. One or two of the great trunk lines are experimenting with the use of the machine for this purpose, greatly to the satisfaction of everybody concerned, as it is found that the telegraphic orders are more easily written, especially when manifold copies have to be taken, are more legible and more durable, as they can be written upon a substantial paper, instead of the flimsy tissue usually employed for train orders.

QUADRUPLEX SYSTEM SOLD.—The Roberson quadruplex system, which has been described in these columns, has been purchased by the Western Union Telegraph Company. The inventor is Mr. O. R. Roberson, assistant electrical engineer of the Western Union Telegraph Company, New York. This system utilizes alternating currents in its operation. It has never failed to work as a quadruplex regardless of weather conditions. The system will be adopted generally throughout the Western Union service.

The Chicago & Milwaukee Telegraph Company, whose lines run between those points, is accepting messages between these two cities at the rate of ten cents for ten words, and one cent for each additional word, on business that can be delivered by telephone.

Business Notices.

The desire on the part of many visitors to the Pan-American Exposition at Buffalo to secure lodging places in private families in that city, both because of the quiet so obtained and of the lessening of expense, has become a very pronounced one. We desire to say that the advertisement in another column offering good accommodations of this nature to intending visitors to Buffalo, and requesting communications to be addressed to Postoffice Box 708, that city, is inserted by a gentleman whom we know personally, who is entirely responsible, and who possesses unusual facilities to furnish the kind of quarters desired.

We have been informed by the Ericsson Telephone Co., 296 Broadway, New York, that the Ericsson telephone was awarded first prize at Paris, 1881; Madrid, 1883; Vienna, 1884; Stockholm, 1886; Copenhagen, 1888; Chicago, 1893. Also that their exhibit in Paris in 1900 was from the St. Petersburg, Russia, factory, which was also awarded first prize. This year their exhibit of a 50 subscriber switchboard and a few of their different telephones at the Pan-American Exposition at Buffalo is made in Section S of the Electricity Building, and Mr. W. Jac Marland will have charge of exhibit.

Through us they extend to all their friends and patrons a cordial invitation to see their exhibit and talk over their instruments. They are exhibiting their goods in connection with others in a collective electrical exhibit, which will doubtless prove of interest to many of our readers.

The Life of a Telegraph Pole.

What is the life of a telegraph pole? The answer must be qualified, because there are many kinds of telegraph poles, and there are many ways of planting them. Those mostly used are of chestnut or pine, but there are several ways in which the life of the pole is artificially prolonged. Then, again, the poles are embedded in varying strata, each of which has a different influence on the durability of the pole which it encompasses.

To determine this question the Pennsylvania Railroad has instituted a series of experiments, which, in about three years from now, will give results of a definite character. Forty-two poles have been erected on the railroad line between Rosemont and Villanova. Six of them are of pine, creosoted; six are of chestnut, wood lined; six have been set in broken stone, six in clay, six in the ordinary way and six erected with a drainage passage through which oil may find its way to the sunken portion of the pole. Railroad engineers and telegraph companies are much interested in the experiments initiated by the Pennsylvania Company.

The above was published nearly three years ago. The question involved is an important one, and as the time limit prescribed in which to determine the value of the experiment has about expired, it would be interesting to know the result of the test.

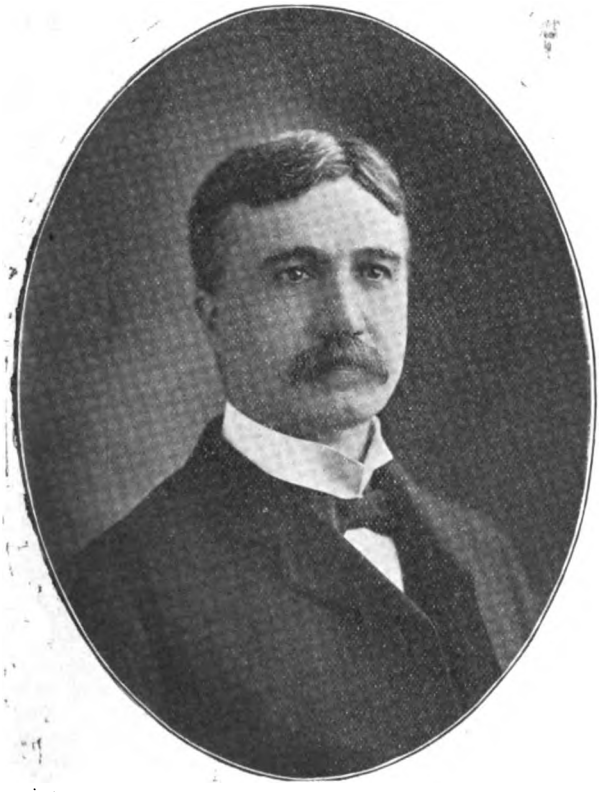
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Mr. W. R. Holligan.

Mr. William R. Holligan, the subject of this sketch, has resigned his position as city superintendent of the Postal Telegraph-Cable Company, at Chicago, Ill., to engage in commercial pursuits. In his retirement the telegraph service loses one of its brightest members, whose career, beginning at the lowest, carried him to one of the highest grades in the gift of the profession.

Mr. Holligan was born at Baltimore, Md., on November 6, 1856. In March of the following year his family removed to Chicago, where he has since continuously resided. In June, 1872, he entered the telegraph service as a messenger for the Western Union Telegraph Company, in whose employ he remained for over twenty-eight years. In his succes-



MR. W. R. HOLLIGAN.

sive and ascending capacities of messenger, check clerk, division chief, assistant night chief, night chief, wire chief at the main office, manager at the Board of Trade office, going thither in October, 1887, and back again to the main office as chief operator in January, 1899, he proved his abilities, and received the confidence of his superior officers. On November 30, 1900, he severed his long connection with the Western Union Telegraph Company to enter that of the Postal Telegraph-Cable Company, also at Chicago, accepting the position as city superintendent. From this place he has recently resigned, the resignation to take effect on June 15, his purpose being to engage in the brokerage and commission business in Chicago.

British Pacific Cable Project "Hung Up."

An unexpected deadlock has arisen between the government of New South Wales and the Dominion Government over the proposed all-British Pacific cable scheme. The Australian colony has granted important concessions to the Eastern Extension Telegraph Company, the competing line. To this Canada strenuously objects, claiming it to be a breach of good faith. The question was referred to the law officers of the crown in Canada, who reported that the action of New South Wales was clearly detrimental to the interests of the Dominion. The British law officers have also reported upon the subject, but in a directly opposite sense, thus causing friction between Britain and Canada as well. In view of the evident gravity of the situation, and the likelihood of a collapse of the whole cable scheme, Sir Wilfrid Laurier, upon the second reading of the cable bill, shortly before the prorogation of Dominion Parliament, reviewed the condition of affairs in respect to the cable project, and added a proviso to the cable bill that it shall not go into effect except upon an order-in-council. This means that, so far as Canada is concerned, the cable project is hung up for the present.

Western Union Office Changes at Cleveland.

The substitution of eighteen motor dynamos for 10,000 cells of gravity battery made it possible for the Western Union Telegraph Company at Cleveland, Ohio, to enlarge its quarters, and move the operating room from the fourth to the third floor of the building. Nearly all the space in two immense rooms was formerly filled with the battery cells. The dynamos economize a great deal of space and leave room for reading and lunch rooms to be installed in the narrow quarters on the fourth floor that for some time have been too small for the operating room.

The move was made June 1. Nothing in the old operating room was disturbed until the last vestige of the new appurtenances had been installed. Some very clever engineering work was done in the reconstruction of this telegraph plant, Mr. L. G. Seibel, chief operator, an expert in such matters, superintending the work.

Publishers' Press New Service.

The Publishers' Press of New York will shortly begin the operation of a regular service for morning newspapers. The list of subscribers already embraces some fifty morning papers published in various sections of the country. President J. B. Shale has been feeling his way toward the establishment of a morning service for months past. He believed that there was a demand for such service, and from the large number of applicants for membership already received it would appear that he knew what he was talking about. This will give employment to a number of first-class telegraph operators.

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TYPEWRITER EXCHANGE

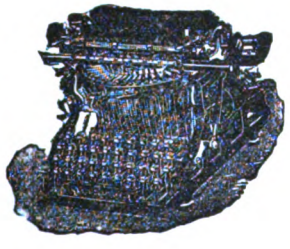
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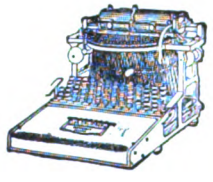


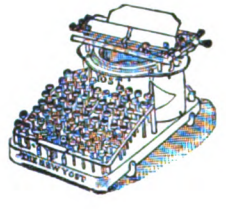
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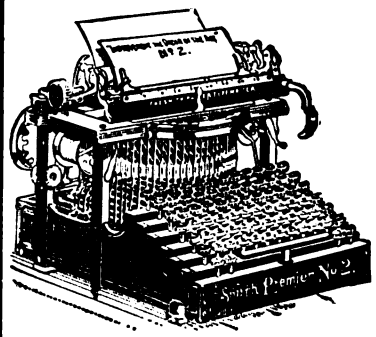
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SAN FRANCISCO—536 California Street.

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GRAND PRIZE, PARIS, 1900. HIGHEST AWARD POSSIBLE

The Smith Premier Typewriter



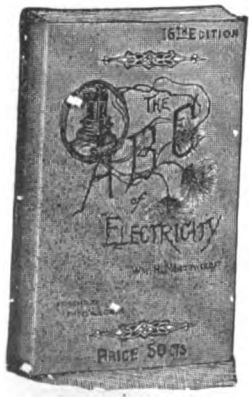
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We have an exhibit at THE PAN-AMERICAN. We invite all operators to visit our booth when on the grounds. Southwest Corner Manufacturers' Building.

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CHANGES OF ADDRESS.—The address of a subscriber will be changed as often as desired. In ordering a change of address the *old* as well as the *new* address *must* be given.

NEW YORK, June 16, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

Mistakes of Writers.

All newspapers have similar experiences regarding the matter submitted by correspondents for publication, and the remarks on the subject by the Washington Post are so apropos that we give them space.

"The old advice about going on the stage—'don't'—applies with equal force to most ambitious young people who try to write for the newspapers and magazines.

"In ninety-nine times out of a hundred the difficulties encountered are insurmountable, mainly because of the inexperience of the writer and the failure to understand the first principles of what is required in the shape of manuscript.

"The principal occupation of the Sunday editor on a big newspaper is returning rejected manuscripts. To be sure, the Sunday editor has to read and revise a few acceptable manuscripts—about 1 per cent. of the mass of matter submitted to a big newspaper—but all of his spare time is occupied by the matter submitted which cannot possibly be used.

"Some newspapers return all manuscripts not available, whether stamps have been inclosed with the article or not; but as this item of expense is considerable in the course of a year, there are few publications which do this, most of them announcing positively that no contributions will be read or returned unless stamps are inclosed.

"In violating this particular rule, the average amateur writer usually loses his manuscript for good and all, though the usual procedure in that case is an indignant letter some weeks later demanding the return of the original manuscript 'or its cash equivalent.'

"Probably the most glaring vital mistake made by amateur writers is the use of the personal pronoun 'I' throughout a story. Some editors have their steadfast rules prohibiting the use of the pronoun. It detracts from the original story by concentrating too much attention upon the story teller; and it requires the use of a signature, which nearly all editors object to strongly, especially in newspaper offices.

"Moreover, careful study of the best writers, and experience likewise, will easily convince any one that a story is better told by being kept in the third person altogether. Newspaper stories should always be written in the third person, unless the writer is so well known that his name lends additional value to the article.

"Another mistake made by the amateur writer is carrying his wares in person to the editor whom he assails. He is actuated by a mistaken theory that personal impression is always more convincing than one made by letter.

"Manuscripts submitted to any editor should be either legibly written or typewritten, and they should be written for some particular publication, after carefully studying the style of the periodical and the class of reading matter found in its columns."

In this connection we desire to call attention to the too frequent expressions some of our correspondents thoughtlessly make use of when referring to local branch offices. Thus to allude to a branch as "F. X.," for instance, a designation understood, doubtless, at the point from which the letter is written, is nevertheless meaningless to all others at a distance, and becomes but little more than a hieroglyphic when incorporated in a letter intended for publication. When we are in receipt of a bunch of ten or twelve such letters, each containing references of this kind, as is frequently the case, the utter grotesqueness of the situation becomes strikingly apparent. The exercise of a little reflection and care in letter writing on the part of our correspondents would enable them to overcome not only this objectional feature but others of a kindred nature as well.

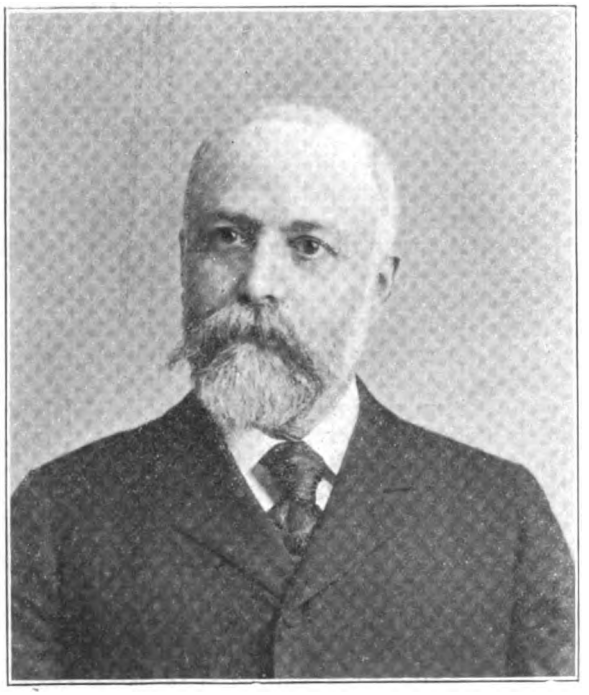
Every telegrapher who loves his profession, who is determined to master its technicalities, and thus insure for himself the confidence and respect of his official superiors and place himself in the direct line of promotion, should subscribe for TELEGRAPH AGE.

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Railway Telegraph Superintendents' Convention.

The twentieth annual convention of the Railway Telegraph Superintendents will meet at Buffalo, Wednesday, Thursday and Friday, June 19, 20 and 21. The place of meeting will be at Statler's Pan-American Hotel, chosen by the committee because of its convenient location, being situated within one block of the main entrance to the Exposition grounds, the great show naturally being the chief objective point for all when the business sessions each day shall have been concluded; and also because the building contains a regularly appointed convention hall with a seating capacity of nearly 500.

No plan of social entertainment for visitors has been adopted, for it was rightly conjectured that the



MR. P. W. DREW, OF MILWAUKEE, WIS.,

Secretary and Treasurer of the Association of Railway Telegraph Superintendents.

Exposition itself, with its vast attractions, would afford all of the recreation possible or desired. The proximity of Niagara Falls, however, will doubtless prompt many to visit that interesting spot, but such excursions or any others that may be made, for which the vicinity of Buffalo offers many opportunities, will be undertaken by individuals and small parties, at times and under conditions to suit their own convenience.

The Committee of Arrangements has been indefatigable in its efforts to promote the success of the convention, and too much praise for faithful work cannot be accorded to Messrs. L. B. Foley, of New York, superintendent of telegraph of the Delaware, Lackawanna and Western Railroad; J. H. Jacoby, of South Bethlehem, Pa., superintendent of telegraph of the Lehigh Valley Railroad, and H. W. Pope, acting general manager of the Bell Telephone Company, Buffalo, N. Y., whose actions receive the hearty approval of the secretary and treasurer, Mr. P. W. Drew, superintendent of telegraph of the Wisconsin Central Railroad, Milwaukee, Wis.

No one knows who has not served in a similar capacity of the amount of labor involved. Every detail of the general plan has received attention and has been carefully worked out, so that in the final operation of the meeting and of its conduct, its harmony of action and perfect working will be due to the united labor of these gentlemen who have been so enthusiastic in their undertaking.

There appears to be intense interest taken in the papers to be read before the convention, and as the topics include a wide range of thought, many important and timely subjects being brought forward, probably an animated and interesting discussion will follow the presentation of each, thus adding largely to the educatory influence of the meeting. The papers, together with the names of their authors, are given herewith:

"Storage Batteries," by W. E. Athearn, of the electrical engineer's office, Western Union Telegraph Company, New York; "Line Construction," by C. H. Bristol, general superintendent of construction of the Western Union Telegraph Company, Chicago; "Importance in Telegraphy of Apparent Little Things," by Thomas D. Lockwood, electrical engineer of the Bell Telephone Company, Boston, Mass.; "Rapid Telegraphy," by Walter P. Phillips, of Bridgeport, Conn., former general manager of the late United Press; "Cipher Code for Railroad Telegraphing," by C. S. Rhoads, of Indianapolis, Ind., superintendent of telegraph, Cleveland, Cincinnati, Chicago and St. Louis Railway Company; "Railroading by Telephone," by F. P. Valentine, of Boston, Mass., superintendent of telephones, New York, New Haven and Hartford Railroad Company; "Construction of Telegraph Relay from a Scientific Standpoint," by Prof. C. E. Freeman, of the Armour Institute, Chicago; "Crossing Alarms," by U. J. Fry, of Milwaukee, Wis., superintendent of telegraph, Chicago, Milwaukee and St. Paul Railway Company. Mr. William Maver, Jr., of New York, author and electrical expert, will lecture on "Automatic Telephone Exchanges," and Mr. George M. Dugan, of Chicago, superintendent of telegraph of the Illinois Central Railroad Company, will be prepared to be interrogated on the subject of "Underground Office Connections."

In celebrating the twentieth anniversary of the founding of the Association of Railway Telegraph Superintendents it will be of interest to present the names of those who have held office during that time, together with the places and dates of the meetings. Here is the list:

November, 1882—Chicago, Ill.

W. K. Morley.....President
Wm. Kline.....Vice-President
C. S. Jones.....Secretary

June, 1883—Chicago, Ill.

W. K. Morley.....President
Charles Selden.....Vice-President
P. W. Drew.....Secretary and Treasurer

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September, 1884—Philadelphia, Pa.

Charles Selden.....President
E. C. Bradley.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1885—Cleveland, O.

C. W. Hammond.....President
Geo. L. Lang.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1886—St. Paul, Minn.

A. R. Swift.....President
Geo. L. Lang.....Vice-President
P. W. Drew.....Secretary and Treasurer

July, 1887—Boston, Mass.

Geo. L. Lang.....President
Geo. C. Kinsman.....Vice-President
P. W. Drew.....Secretary and Treasurer

July, 1888—New York.

Geo. C. Kinsman.....President
C. A. Darlton.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1894—Detroit, Mich.

O. C. Greene.....President
E. R. Adams.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1895—Montreal.

M. B. Leonard.....President
J. W. Fortune.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1896—Ft. Monroe, Va.

G. M. Dugan.....President
J. W. Lattig.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1897—Niagara Falls, N. Y.

J. W. Lattig.....President
W. W. Ryder.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1898—Omaha, Neb.

W. W. Ryder.....President
L. B. Foley.....Vice-President
P. W. Drew.....Secretary and Treasurer



STATLER'S PAN-AMERICAN HOTEL, BUFFALO, NEW YORK.

Where the Convention of the Association of Railway Telegraph Superintendents will be held June 19, 20 and 21.

October, 1889—Washington, D. C.

C. A. Darlton.....President
G. T. Williams.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1890—Niagara Falls, N. Y.

G. T. Williams.....President
G. M. Dugan.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1891—Cincinnati, O.

C. S. Jones.....President
L. H. Korty.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1892—Denver, Col.

L. H. Korty.....President
U. J. Fry.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1893—Milwaukee, Wis.

U. J. Fry.....President
O. C. Greene.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1899—Wilmington, N. C.

L. B. Foley.....President
W. F. Williams.....Vice-President
P. W. Drew.....Secretary and Treasurer

June, 1900—Detroit, Mich.

W. F. Williams.....President
Chas. F. Annett.....Vice-President
P. W. Drew.....Secretary and Treasurer

New York city will send a numerous contingent to the convention, made up of both delegates and visitors, some of the former coming hither from other cities. Among those who have already expressed their intention of going are: William Maver, Jr., W. E. Athearn, E. P. Griffith, W. F. Williams, A. P. Eckert, W. S. Eckert, W. S. Logue, W. E. McLaughlin, John J. Ghegan, J. B. Taltavall, T. R. Taltavall, T. D. Lockwood, L. S. Wells, L. B. Foley, F. P. Valentine, F. H. Bethell, Wendell Baker, H. P. Miller, C. P. Bruch, H. S. Young, Jr., F. L. Blendinger, A. J. Wise.

The regular membership will be well represented

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at Buffalo, those who are expected to attend the convention being as follows, many being accompanied by their wives and other members of the family:

W. F. Williams, Portsmouth, Va.; H. T. Simpson, Richmond, Va.; W. C. Walstrum, Roanoke, Va.; E. Borden, Wilmington, N. C.; J. H. Jacoby, South Bethlehem, Pa.; W. F. Taylor, Altoona, Pa.; H. N. Daniell, Sayre, Pa.; C. M. Lewis, Reading, Pa.; C. A. Darlton, Washington, D. C.; C. P. Adams, Jersey City, N. J.; Joseph Dull, Baldwin, Fla.; L. B. Foley, A. B. Taylor, F. L. Blendinger and L. S. Wells, New York; W. J. Stoneburner, Rochester, N. Y.; Charles Selden, Baltimore, Md.; F. P. Valentine, S. A. D. Forristall and E. A. Smith, Boston, Mass.; M. Magiff, St. Albans, Vt.; J. S. Evans, Cleveland, O.; E. R. Scoville and J. L. Orbison, Cincinnati, O.; J. H. Louy, Lima, O.; George L. Lang, Lexington, Ky.; C. B. Phelps, Louisville, Ky.; K. McKenzie, Jackson, Tenn.; G. B. McCoy, Memphis, Tenn.; C. S. Rhoads, Indianapolis, Ind.; D. H. Caldwell, Fort Wayne, Ind.; E. E. Torrey, Detroit, Mich.; W. W. Ryder, G. M. Dugan, C. F. Annett, A. R. Swift, G. H. Thayer and W. J. Holton, Chicago, Ill.; G. C. Kinsman, Decatur, Ill.; G. M. French, Mattoon, Ill.; G. H. Groce, Flora, Ill.; P. W. Drew and U. J. Fry, Milwaukee, Wis.; O. C. Greene, H. C. Hope, E. J. Little and J. R. Michaels, St. Paul, Minn.; H. A. Tuttle, Minneapolis, Minn.; F. S. Spaford, Cedar Rapids, Ia.; J. P. Boyle, Keokuk, Ia.; E. A. Chenery and C. W. Hammond, St. Louis, Mo.; H. C. Sprague and N. D. Ballantine, Kansas City, Mo.; J. M. Egan, Springfield, Mo.; S. K. Bullard, Sedalia, Mo.; L. H. Korty and W. P. McFarlane, Omaha, Neb.; H. B. Ware, Wymore, Neb.; C. G. Sholes and A. R. Lingafelt, Topeka, Kan.; F. A. C. Ferguson, Wilson, La.; W. L. Bisbee, Houston, Tex.; C. A. Parker, Denver, Col.; J. B. Donner, San Francisco, Cal.

Signal Corps Work in China.

General Chaffee, commanding the American troops in China, makes hash of an article written recently by a war correspondent named Millard, depreciating in many ways the work and equipment of the American troops in China. One passage of General Chaffee's criticism is as follows: "No one objects to the high admiration expressed by Mr. Millard for the Japanese army, its equipment, etc. However, when he says, 'On the march to Pekin their field telegraph line prevented the allied army from losing connection with its base; the American Signal Corps, a branch our service is wont to boast of, did manage to string a wire and keep it open at least part of the time, being on all sorts of improvised poles in a treeless country, it naturally fell by the wayside with annoying frequency; not so with the Jap telegraph. It was provided with telescopic metal poles and braces, and when once set stood. An hour after the camp was pitched after a day's march the Japanese field telegraph would open up communication with the next station in the rear'—he is dallying with error. The fact is, the British and American telegraph line, jointly constructed and operated, was the only line brought forward with the troops."

Henry W. Pope.

Mr. Henry W. Pope, of Buffalo, N. Y., acting general manager of the Bell Telephone Company of that city, was born at Great Barrington, Mass., November 2, 1848. He succeeded his brothers, Frank and Ralph, as manager of the telegraph office at that place, at the age of 14. In 1863 Mr. Pope was transferred to the main office of the American Telegraph Company, located at 145 Broadway, New York. He was considered at that time not only the youngest, but in stature, the smallest sound operator in the business. Mr. Pope was located in Boston in 1866 and 1868, and there received the first cablegram from the first successful Atlantic cable. From 1868 to 1879, he was chief operator of the Gold and Stock Telegraph Company and assistant general superintendent of the American District Telegraph Company, New York, introducing in the latter company the first telephone service in New York city,—the first adaptation of the simultaneous telephone and telegraph principle, and improvised and constructed in 1877 the first telephone hook switch located in the office of the Roosevelt organ factory in Eighteenth street.



MR. HENRY W. POPE,

Acting General Manager of the Bell Telephone Co., Buffalo, N. Y.

From 1879 to 1882, he was general superintendent of the Bell Telephone Company, and one of the appraisers of the telephone property in New York city, prior to the consolidation of the telephone interests, and was also the organizer and general manager of the Mutual District Messenger Company of New York.

Disposing of his interests in the latter company, Mr. Pope engaged in the organizing and constructing of street railway and electric light plants, in-

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stalling a large number, notably the Citizens' Illuminating Company, of Brooklyn, of which he was president—the first company to introduce electric lights in the City of Brooklyn.

In 1895, Mr. Pope again identified himself with the Bell Telephone Company's interest, serving in various official capacities with the American Telephone and Telegraph Company and the Southern Bell Telephone and Telegraph Company, until 1899, when he was appointed acting general manager of the Bell Telephone Company of Buffalo, operating the territory in the western portion of the State of New York.

Mr. Pope always took a lively part in the advancement of electrical interests, organizing the first District Telegraph and Telephone conventions, which for years were the center of interest in electrical circles. Mr. Pope holds advanced ideas and is one of the best posted telephone men in the country. He has probably done more than any other single telephone official in America to advance the popularity of the telephone with the public at large and with business men.

Introducing the Telegraph in Chili.

It is stated by an exchange that when the electric telegraph was introduced into Chili strategy was resorted to in order to guard the poles and wires against the damage on the part of the natives and to maintain the connection between the strongholds on the frontier. There were at the time between forty and fifty captive Indians in the Chilian camp. General Pinto, in command of the operations, called them together and, pointing to the telegraph wires, said:

"Do you see those wires?"

"Yes, General."

"I want you to remember not to go near or touch them, for if you do your hands will be held, and you will be unable to get away."

The Indians smiled incredulously. Then the General made them each in succession take hold of the wire at both ends of an electric battery in full operation, after which he exclaimed:

"I command you to let go the wire!"

"I can't!" cried each Indian.

The battery was then stopped. Not long after the General restored them to liberty, giving them strict instructions to keep the secret. This had the desired effect, for, as might be expected, the experience was related in the strictest confidence to every man in the tribe, and the telegraph remained unmolested.

Time By Cable in the Philippines.

Captain G. O. Squier writes from the U. S. cableship Burnside, in the Sulu Archipelago, that they have laid practically all the cable they had on board, and that it is working very successfully. The last link connected up our "feudatory," the Sultan of Jolo. Time is furnished now from the observatory at Manila to all important points throughout the islands as far south as Jolo, and a press bulletin goes free daily to every garrison. The resultant unification is rapid and significant.

High Life in the Yukon.

The building of the Yukon telegraph, with which the name of Charleson seems to be inextricably involved, and which of late has been under investigation, appears to have been attended by practices which, however prevalent they are supposed to be among the unregenerate on this side of the border, we have nevertheless been led to believe could not exist among our Canadian neighbors. But the Toronto Mail, in its analysis of the affair, derived from no less an authority than the report of the Auditor-General of Canada, presents a story which, in its peculiar and extensive detail of expenditures involved, could fairly put to shame the most flagrant American political methods. "Here's richness," as Mr. Squeers would say:

"The Auditor-General's report gives some interesting particulars relative to the Yukon telegraph enterprise, which is under the control of Mr. Israel Tarte. Three years ago a Yukon Telegraph Company was incorporated at Ottawa, and a number of English capitalists took the undertaking up. At the head of the corporation was a well-known member of the Imperial House of Commons. To this gentleman the Government wrote through the Minister of Railways informing him that the Cabinet was much interested in the work, and wished the company to push it through with all convenient speed. The company promptly raised its capital, bought its wire, and was just about to begin when it received notification that the work was to proceed as a Government scheme under Mr. Tarte's supervision. It was supposed at the time that the English company had omitted some necessary formality—a subscription to the campaign fund or the admission of a Canadian politician to the company—and that for this reason it was superseded.

"However this may be, a Quebec politician, Mr. Charleson, was appointed by Mr. Tarte with carte blanche to string the wires and set a Government line in working order. Up to the end of June Mr. Charleson had expended $380,553 in this business. The Auditor-General's report shows that there are five Charlesons engaged in the undertaking. One, J. B., is at the head of the office, with $4,000 a year and everything found, including bar bills. Three, Alexander, A. J., and E. R., occupy subordinate positions, while another, W. G., a son of J. B., furnishes all the equipment without tender. W. G. was before the Public Accounts Committee with his bills for wire and tools during the recent session. It was while he was giving evidence that Mr. Tarte entered his protest against any inquiry touching the amount of the "rake-off" or commission extorted from contractors by the Government for its campaign funds. The committee, in response to Mr. Tarte's appeal, decided that no such inquiry can be made, the "rake-off" being a private matter. While W. G. was supplying the wire and so forth for the line, J. B. was arranging for the trip. It appears from the Auditor-General's report that nothing was forgotten. One of the first things provided was a Tricolor—$7. It was necessary to furnish the expedition with Mr. Tarte's "dear flag of France" as a tribute to the head of the Department of Public Works, under

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whose auspices the affair was being carried out. Wherever the expedition bivouacked the Tricolor was raised. Everything possible was done for the comfort and happiness of the party. In fact, everybody was clothed. A great stock of underwear was laid in. The bill under this head was $2,026 for 1,723 suits. Some suits of underwear were purchased at the rate of $40 per dozen, or of $3.50 per suit. Others were as low as $1 per suit. Shirts from $2 each down were furnished. Of these, 712 were bought, the bill being $822.75. A fine assortment of socks and stockings was also purchased. There were 1,860 pairs of socks and 284 pairs of stockings—price, $830.85. Of trousers there were 440 pairs, costing $788.50. These varied in price from $2.50 to $1.50. To preserve the trousers 186 pairs of overalls were bought, for $155. To keep the trousers and overalls in position 381 pairs of braces were laid in. They cost $136.60. Coats to the number of 380 were also purchased. Their cost was $847. Of complete suits, from $25 each down, 22 were bought for $321.50. The party had to have handkerchiefs, and 324 were provided and charged to the country, $95.10. Boots, moccasins, gloves and even hats and caps were added to the bill. Here is the list:

1,722	suits of underwear	$2,026.00
712	shirts	822.75
2,144	pairs socks and stockings	830.85
440	pairs of trousers	788.50
186	pairs of overalls	155.50
381	pairs of braces	156.60
380	coats	847.00
22	suits	321.50
324	handkerchiefs	95.10
469	pairs of boots	2,138.00
540	pairs of moccasins	977.50
1,125	mitts and gloves	713.25
145	caps	101.50
186	cowboy hats	519.00
		$10,474.05

"This is altogether exclusive of blankets and sheets, pillows, towels, brushes, valises, pocket-knives and pocket combs. The combs, by the way, numbered 120. The sleeping arrangements were excellent, as the following would indicate:

10	eiderdown sleeping robes, at $25 each	$250.00
12	eiderdown sleeping robes, at $30	360.00
2	eiderdown quilts, at $17.50	35.00
6⅔	doz, eiderdown caps, at $18	120.00
	Total eiderdown outfit	$885.00

"The expedition was not one of the South African type, but, on the contrary, was under Mr. Tarte's influence, and was manned by politicians and not patriots. It was therefore well equipped with et ceteras. Here are a few:

2	cases brandy	$33.50
10	gallons rum, at $5.25	52.50
1	case bitters	17.50
		$103.50

	Cigars—	
3,000	Representative	$180.00
1,000	Flora Espana	45.00
1,000	El Bondoso	37.50
1,000	Manuel Garcia	75.00
6,000		$337.00
	Tobacco—	
105	lbs., at 70c.	$73.50
70	lbs., at 74c.	51.80
86	lbs., at 68c.	58.48
560	lbs., at 59c.	330.40
1,190	lbs., at 72c.	856.80
301	lbs., at 65c.	195.65
559	lbs., at 68c.	380.12
120	lbs., at 72c.	86.40
107½	lbs., at 67c.	72.03
3,098½	lbs.	$2,105.18

"There was a ton and a half of tobacco, with 684 pipes to smoke it in. The supplies with which the Charleson family started out cost $60,000 in round figures. They consisted of brandy, rum, bitters, Bovril, effervescent salts, cigars, tobacco, fancy sausages at 60 cents a pound, extract of beef, canned duck and chicken, pickles, marmalade, apricots, peaches and all classes of preserves. There were 864 plates to eat these supplies off, 612 pairs of knives and forks to carve them with, 700 tablespoons, 432 cups and saucers, 288 teaspoons and 72 teapots and coffee pots. It was a regular picnic.

"The Yukon telegraph man occupied an Egyptian tent, price, $65; he slept in his eiderdown sleeping robe, $30, and his eiderdown toque; he rose and dressed himself in Government-bought clothes, $10,474 worth; fed on the delicacies of the season, $60,000 worth, and over his brandy and rum smoked the 6,000 cigars or the ton and a half of tobacco. Unfortunately the bills are not all in yet. Those so far presented wind up on June 30 of last year. But the instalment we have received show that it is much nicer to be stringing telegraph wires under Tarte than to be fighting for the Empire under Dr. Borden. Tarte's emergency rations for his politicians are far richer than the dog biscuits provided for our soldiers."

All this goes to prove that Government telegraph can be "economically" constructed by politicians.

A Curious Invention.

Herr A. Palencsar, residing in Budapest, Austria-Hungary, has been granted a patent in this country on apparatus for collecting electricity from the atmosphere, which is a curiosity of invention. The idea underlying the invention is based on the modern theory of atmospheric electricity, according to which it is produced by the condensation of steam or aqueous vapors, and that the increase of potential is effected by the concentration of the small drops of water into larger ones, as the proportion of the surface of the drops to the volume of same is materially reduced thereby.

A subscription to TELEGRAPH AGE is regarded as a good investment.

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MR. W. F. WILLIAMS, OF PORTSMOUTH, VA.
PRESIDENT OF THE ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.

SEVERY PROCESS PRINT: N. Y.

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VICE-PRESIDENT OF THE ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS

SEVERY PROCESS PRINT. N. Y.

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A NIGHT OPERATOR'S EXPERIENCE.

BY A. C. COSTLEY.

I am an operator and station agent by profession. When I left school to take my first position as operator I was only 17. My experience in being away from home was very much limited and my nerve was not quite developed. An old time operator, "Shorty" Smith, at that time night operator at Burlingame, Kan., took advantage of my youth and inexperience. With a view of posting me as to how I should perform in case of emergencies, he stated that misfortunes were more frequent with a beginner than an old timer, and that it was well to prepare myself for the bitter as well as the sweet. And to thoroughly impress this upon my mind he related a little instance which he claimed took place back in an eastern town.

It was a coal town, and money was expressed once a month to pay off the miners. It so happened at this time that trains were delayed on account of a snow blockade. One passenger train came and went during the day, but one was very late and compelled the day agent to remain on duty until its arrival. The train that had come and gone left a corpse, and as it was not called for that day it was set back in the back part of the telegraph office. There was no night operator at this point, and for the day agent to remain on duty was unusual.

The agent becoming weary turned his lights quite low and climbed up on the ticket counter to rest. He had been in solid comfort but a short while when he heard a queer noise in the corner where the corpse was. Raising on his elbows he beheld the supposed corpse alive and getting up out of the rough box. He never moved, but watched the motions the corpse went through. The uncoffined dead walked to the outer door and unlocked it and let a partner in. They immediately began to drill the safe in order to blow it up.

The agent saw he was up against the real thing. He jumped to the center of the room and getting hold of an iron poker managed to knock one of the ruffians out the first blow and finally overpowered the other, and came out a living hero.

This little tale impressed my mind with a horrifying dread that I might be the victim of such an experience.

It was in the fall of 1885. I was given the position of night operator at Wakarusa, Kan. Many of your readers have possibly passed through this little station, as it is only about 12 miles south of Topeka, on the Santa Fé. The position of night operator at this point is not the most desirable on earth and especially to a boy possessing as little nerve as I did at that time.

I had been working only a few nights when I was informed by the agent one evening that there would be a corpse in on the night train from the East, and that there would be a man from Auburn to receive it and to keep posted the best I could so as to furnish them all the information possible in case the train should be late. About 7 P. M. it began to rain, and about 10 P. M. I noticed several passengers in the waiting room, who, from their appearance, were people out for other objects than pleasure. The train was on time, as luck would have it, and arrived at 1.50 A. M. I did not relish my lunch that night. The rain made me quite uneasy, as I was afraid the man who was to come for the corpse would not be able to take the little box home that night.

When the train arrived I assisted getting it off the train and soon as practicable made my exit. I had not been in the office long, meditating how fortunate I had been and enjoying the pleasant comforts of solitude, when one of the funeral party came and said they would have to leave the corpse with me until morning. This was a shock which was undescribable. I thought I could feel my blood reverse in my veins when these words were spoken to me. The little instance my friend had been so kind as to relate to me was yet fresh in my mind.

I well knew unless I permitted the storing of the box my job would be a thing of the past, after that night. I concluded to allow them to set it in the wareroom, and before I opened the door I took a good look around the two rooms to make sure there was nothing in there that would need letting out to necessitate my transacting any business in that department. I then opened the outside door and instructed the party to set the box in the wareroom and to come through my office to go out. They obeyed my instructions and soon went their way.

The rain was pouring in torrents by this time and the night was very dark. This only added to the dreariness of the occasion. I had made up my mind to stay with it, and sat down in my chair and was trying to make myself brave and composed, when, to my bitter surprise, I heard a queer noise in the room where the corpse was. At this I jumped up and began searching for a stove poker, as this was the favorite weapon in cases of this nature. I soon equipped myself with this and awaited my fate. Soon I heard another queer noise in that part of the building, something I considered unusual for a dead person to be making. I stood this until I heard the noise again. This was too much for my nervous system, and I thought best to make a-get-away. I called the train dispatcher at Topeka and told him my troubles, and that I was going to leave the office. He insisted that I should remain, as he wanted to put out orders there soon. He said he would stop "first 212" and they could see what was the trouble.

I made the best of it. Every few minutes I could hear some one charging around in the corpse department, as though he was arranging his toilet and would soon come for me. The first section arrived, and I related my experience to the conductor, who was an unusual good specimen of the male sex. He was conducted to the door which opened into the room that contained the mysterious box, and without giving any countersign gained admission. At the very moment he opened the door out bounded a large shepherd dog, and he did not come out easy, but jumped with all his force. This solved the mystery. I have suffered from nervous prostration ever since, and this is a mere infant to some others I have experienced.

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Confederate Military Telegraphers.

No more valuable service was performed during the great war between the states by any branch of the military or naval force than that done by the telegraph. Both contending armies were indebted to it for valuable work and for important information. Heroic deeds were often enacted by the operators, and many of their most self-sacrificing deeds are unrecorded. Almost every expedition of a dangerous nature had one or more telegraph operators in its force to read and translate telegraphic cipher, or to tap wires and transmit news of important movements.

Much has been said in recent years of the heroic act of Sam Davis, the brave young Tennessean, who was executed as a spy, and died when he might have been saved by merely giving the name of a comrade who had imparted valuable information to him. A similar case occurred in Arkansas, of which little publicity has been given. A lad less than 18 years of age, named David O. Dodd, a native of Lavacco county, Tex., was hanged at Little Rock on January 8, 1864, for refusing to reveal the name of his informant describing the fortifications around Little Rock. Young Dodd was not a soldier, but he had studied the dots and dashes of telegraphy. In an attempt to pass out from the city he had been allowed to reach the outpost guard, when marks in his memorandum book were noticed. He was sent back under escort to General Steele, where an operator found that by Morse telegraph characters he had a full description of the military works about the city. He was tried by court-martial and condemned, but General Steele offered to reprieve him on condition of his disclosing the parties who had imparted the information. His kindred made an earnest appeal at the last moment to save his life, but he firmly waved them away, and said he would rather die than betray a friend. A marble shaft recording the date of his birth and death marks his grave in Mount Holly Cemetery, Little Rock, placed there by surviving friends in memory of his bravery.

The late Barney Hughes, of Memphis, was a telegraph operator during the larger part of the Civil War. At the outbreak of hostilities he entered the service as a lieutenant of heavy artillery, and in this service he handled a battery on the river front under the chalk bluffs at Columbus, Ky., when Belmont was fought on the opposite side, November 7, 1861. Later he served as ordnance officer on the staff of General Trudeau at Island No. 10. In the summer of 1862 he was located at Chattanooga, where he sometimes whiled away a leisure hour by sending dispatches to the operators along the front telling them of a scarcity of forage and other supplies, so that he was confidential operator for General Bragg, the leader of one of the great armies of the Confederacy, and he was with him at Ringgold and Catoosa Springs, Ga. At the close of the war he was at Montgomery, Ala., and later he went to the far northwest, where he operated for several years. Then he came to Memphis, entered the railway service, married in 1872, reared a family, won the regard of the people, and died universally regretted by a host of people. A beautiful monument now marks his resting place at Elmwood, and its inscription records the genial qualities of the man as well as the great esteem in which he was held by his fellow citizens.

The late Henry A. Montgomery, also of Memphis, was noted for his great energy in every enterprise with which he was connected. He was one of the earliest telegraph operators thereabout, and three or four years previous to the war was located at the Commercial Hotel. As general superintendent he built the first telegraph line west from Memphis to Little Rock, and during the war he continued it to Clarksville, which was its eastern terminus. He also built a line from Madison to Helena, Ark., during the war. These lines were moved south as the Confederates were pressed toward the Gulf. There was no telegraph line in Arkansas prior to 1860.

Emmet Howard, the present manager of the Western Union Telegraph Company in Memphis, began his career, both in life as well as in his profession, like Barney Hughes, in Kentucky. Mr. Hughes' first public service was as an acolyte in a church at Louisville, but Mr. Howard first attracted attention by working a wire at the modest little town of Blandville, eighteen miles northwest of Columbus and twelve miles southeast of Cairo. An older friend wished a vacation, and put young Howard on as his substitute. This led to its adoption by him as a profession, and Blandville being an outpost, with Howard an ambitious student of southern sentiments, he was located there for duty. Lines of telegraph led north and south and were in good condition as the war progressed, and for several months communication was not seriously disturbed. During the autumn of 1861 scouts of both armies passed to and fro about Blandville, and Operator Howard told their movements over the wire to General Polk at Columbus. Finaly he was driven from the town by the Federals. He located at a mile south in a hollow behind a tree, from whence, by tapping the wires a hundred yards away and catching the passing messages, General Polk was kept informed of what was going on. This is the first recorded instance of wire-tapping in the history of telegraphy, but it proved a dangerous as well as a poor-paying business, the hardships endured, as well as the risk, not being repaid by the results.

Federal forces, under orders from General Grant, took possession of Paducah on September 6, 1861, a few days after the Confederates, under Polk, had occupied Columbus. Six months later, February 6, 1862, Admiral Foote captured Fort Henry, on the Tennessee river, and seven days later General Grant took Fort Donelson, with Buckner and his army. These successes and the Mill Springs disaster on January 19, rendered Columbus untenable to the Confederates, and General Polk marched his army southward during the first days of March, the munitions of war, with 3,000 men, going by river to Island No. 10. Mr. Howard was ordered to Hickman, Ky., a defenseless point nearly midway between Columbus and Island No. 10. Here he was to telegraph the passage of the Federal gunboats southward. Confederate scouts and couriers who were all there were to aid How-

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ard, and when the gunboats steamed down on March 6, in a fog, he took up his instrument, mounted a horse, rode to the depot, got on a hand-car, went out two miles and collided with an engine, which threw the hand-car out of the way all broken up. The men on it jumped off in time to save their lives. All hands mounted the engine, which started for Union City, only to run into a body of Federal cavalry. Mr. Howard had attempted a reconnaissance, but was run so close that he barely reached the engine, which caught on the center as it tried to start, and it would not budge until the engineer got off and used his crowbar, moving the driving wheel, the enemy meantime using their rifles at a lively rate.

The engine reached Union City, fourteen miles out, with no one damaged, but Mr. Howard was ordered to return to within a half mile of Hickman, where he tapped the wire and used a crosstie for an office for several days, when he was relieved by two other operators, after which he served at Jackson, Tenn. After this he served at other points, until ordered to locate at Meridian, Miss., where, as telegraph manager, he was at work when General Sherman approached with an army of 23,000 men from Vicksburg, early in February, 1864. Polk opposed Sherman with a small force, but could not check his easterly progress until Forrest hit a column from Memphis, after which Sherman's army retraced their march to Vicksburg. Meantime Howard had to get away from Meridian in a hurry, barely escaping a cavalry column which rode up to the track as the train passed a point three miles to the south of Meridian.

The noted Kentucky cavalry leader, John H. Morgan, had a Canadian operator named George Ellsworth with him during the war. His first exploit was near Horse Cave, Ky., late in July, 1862. By connecting his instrument with the main line he was enabled to receive news of value to his leader and to discomfort his enemies. In several of Morgan's great raids Ellsworth was of very important aid, and throughout the war he did his best for the southern cause. He died a short time since.—Memphis Commercial Appeal.

Odds and Ends.

If you lose your "grip" in the telegraph service you can sometimes get the "grip" by using a telephone, so the germologists claim.

The authorities of Paterson, N. J., are so cautious of their own health that they would not even allow a woman in the smallpox hospital to be married by telephone. The spreading of contagion by wire seems to be more feared than sending it broadcast by their dirty river.

Probably he wanted to be an "immune," for after a country office had sent him a thousand words of special, the city chap, who had received it, said, with all the burning sarcasm that electricity could convey over a wire: "I wish you were small-pox!"

"Why?" asked the sender.

"Because," said the receiver, his acrimony unabating, "then I'd never have you again!"

LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

MONTREAL, QUE., CANADIAN PACIFIC.

A wedding occurred on the 8th inst., when Miss Josephine Lucas, of this office, was married to Mr. Raoul Bissonette, of this city. Mr. and Mrs. Bissonette left on their bridal tour for Toronto, Hamilton and Buffalo, with the best wishes of their many friends.

Messrs. H. Schraeder, John Cole and J. W. Ross have received their first stripes, and are now manipulating the city wires.

Mr. O. M. Young has resigned and departed for Colorado Springs for the benefit of his health. Messrs. G. A. McBain, A. W. McLaren, J. J. Irwin and J. P. Kernan have also resigned.

Messrs. Janvièr A. Fortier and C. Gibeau have been transferred to straight days. Mr. Nelson Noble has accepted a position with L. J. Forget & Co., a brokerage firm of this city. Mr. Herbie Keating has gone over to the Great North Western.

Arrivals: Messrs. R. E. Chapman; S. M. Thurston, from Ottawa, and J. Martyn, from Toronto.

PHILADELPHIA, PA., POSTAL.

The most important recent occurrence was the marriage of Jay A. Thomas to Alice Viola Stonemetz on the 5th instant. The bride and groom immediately took possession of their own new home to begin housekeeping. Congratulations were extended.

Trips to outside points in the Company's interest seem to be the call these days on Chief Operator C. A. Stimpson's time. He had scarcely gotten in from Atlantic City, where he had established a new, handsome and modernly equipped main office, when he took up a Southern trip to Cape Charles, Va., returning northward to locate and

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eradicate the trouble on the new line down the Cape. Traffic Chief George W. Dunn, in the meantime, assumed Mr. Stimpson's official duties.

A few days' absence of Mr. John Shindine, chief clerk in the service department, caused it to become very apparent that his services are of an important nature. Miss Jennie Hallman and the Messrs. Wm. H. Butcher and John McLaughlin had their hands full during the time Mr. Shindine was away.

Mr. Joseph Hockery has been transferred from the 7 a. m. trick to be day operator in the North American office.

Mr. G. B. Morris, from The Associated Press, this city, is now with this company at one of the newspaper offices.

The yellow jaundice held our friend Bud Gagen, now employed by a broker, tightly in its clutches for several weeks. He is again at work.

NEW YORK POSTAL.

Mr. R. W. Stimers has resigned to accept a position with the Commercial Cable Co. at 20 Broad street.

Mr. J. T. Needham, assistant wire chief, Eastern division, has returned from a vacation of two weeks spent at his home and at the Pan-American Exposition at Buffalo.

Mr. J. A. McNulty, Eastern wire chief, has moved to his new residence at Ridgewood, N. J., for the summer.

Mr. Glen Newman, quad chief, South and West, is absent on a two weeks' vacation.

The Misses H. Jarmain and E. Heckel are also away on vacation.

Departures: Miss L. A. Howell, to Lenox, Mass., office for the summer; Miss E. Terrill to a Long Branch summer office; Mr. H. Gibson to the Asbury Park office for the summer; Mr. Arthur Banker to his old position at Paul Smith's hotel, Adirondacks, N. Y., and Mr. J. J. Sutphen to the White Face Inn, Adirondacks, N. Y.

Arrivals: Miss M. Cleary, Mr. J. W. Paul from the Herald night force; Messrs Hugh O'Rourke, J. Muir, B. B. Martin.

Transfers: Mr. W. C. Snyder, city department, to South and West; Mr. J. P. Williams from night force to all night trick; Mr. M. E. McKittrick from city department to South and Western division.

NEW ORLEANS, LA., WESTERN UNION.

Two crack baseball teams have been organized in this office. Their first game of thirteen innings resulted in goose eggs both sides. The teams style themselves the "Never Break" and "Never Bull," and are manned as follows:

"Never Break"—Meynier, P.; Serrat, C.; Molony, 1st base; Tognoni, 2d base; Knecht, 3d base; Harper, S. S.; Sullivan, R. F.; Mauberrett, L. F.; Richardson, C. F.

"Never Bull"—Garland, P.; Holthouse, C.; Gallagher, 1st base; McMahon, 2d base; Schraut, 3d base; Bell, S. S.; Carbajal, R. F.; Silver, L. F.; Gowland, C. F.

They would like to hear from the Postal's ball team.

Miss Katie Madison, of Ocean Springs, Miss., and Henry C. Turner, the popular foreman of the local linemen, were married in Ocean Springs, May 29. They were absent on a bridal trip of a week.

The many friends of our esteemed chief, Mr. W. D. West, will be glad to learn that the piney woods of Ponchatoula, La., are restoring his health, and he will soon be with us again.

Arrivals: Messrs. E. E. Woolfero, M. M. Lott, Thomas Watkins, J. G. Davis (late Southern Pacific dispatcher) and J. A. Peterson.

Mr. Urb Mauberrett has left for an eastern trip and Mr. P. A. Moake has resigned to accept a position in the fire alarm office. Superintendent of Telegraph G. M. Dugan, of the Illinois Central Railroad, was in town lately.

Mr. John A. Galbreath, of the operating force, has been appointed to the responsible position of finance clerk in the Post Office in this city. Mr. Galbreath has held many public offices. He was a telegraph operator in the Confederate army, and is a chess player of international reputation.

CHICAGO, ILL., WESTERN UNION.

Do not let us forget our brothers who have strayed away from the fold, and let us extend a friendly greeting and congratulations to Ray F. Finley (son of Assistant Chief Operator C. H. Finley, of this office), now at Kansas City. He was recently promoted to the regular all night force at that point and is surely on the road to promotion. Mr. Finley should not feel lonesome, for there are some other Chicago boys in Kansas City, among them Harry Hall, who is giving a good account of himself.

Chief Operator L. K. Whitcomb and Mrs. Whitcomb were present at the christening of their grandson at Kansas City recently. There were present Louis Kossuth first, second and third.

Mrs. Anna Hutchinson went presumably on a vacation a short time ago, but it in reality proved to be her honeymoon, much to the astonishment of all. She was married to Geo. Fairman, now at Armours. We all extend congratulations.

Mr. F. A. Peterson and family recently visited their relatives at Sioux City for two weeks. Mr. Peterson reports fine fishing, and his gait is now full of elasticity from the outing.

Mr. A. W. Galloway has returned from a vacation looking much benefited.

Mr. H. C. Bresher is back again after an absence of a month at Burlington, Iowa, where he has been filling in during the sickness of the regular operator.

Dip McCruden, recently of St. Louis, is now in this office. He is a record breaker, having recently sent 95 messages per hour to Kansas City.

Mr. Robert Atkinson has been away on sick leave.

Rev. Father Welaskewicz, formerly Francis Welaskewicz of this office, recently passed through Chicago and was a visitor here on his way to western Nebraska, where he has been assigned as a priest.

Frank Abbott's little baby died on June 3. Mr. Abbott sustained the loss of a portion of his

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foot a short time ago, and now this death following so soon awakens especial sympathy for him.

Night Chief Operator Geo. Dunning has the sympathy from all in the death of his sister.

Walter Gilmore, of the St. Paul division, has recently lost by death first his mother-in-law and then his mother.

Mrs. M. E. Farron, sister of Mrs. Anna Hutchinson, is with us. Mrs. Farron at one time worked in the St. Paul office, St. Paul being her home, but for the past two years and a half has been living in Chicago. She is a first-class telegrapher.

Mrs. Maude Wright, late of Cleveland, O., has been assigned to Gallagher's division. She is a genial and refined lady, and we wish her success.

The Chicago Western Union Baseball Club have reorganized for the season of 1901 and would like to hear from other telegraphers' ball clubs, the Milwaukee, Peoria and Cleveland clubs preferred. The players are: Morton, Ruprecht, Danbach, Eichler, Simpson, Snell, Hill, Lewis, Schwartz. Substitutes: Sullivan, Leitch, Ryder, Rube Carlin and Watts. Mr. J. L. Danbach, of the Board of Trade, is manager.

SAN FRANCISCO, CAL., WESTERN UNION.

San Francisco now enjoys a distinction not accorded many points outside of the National Capital; that is, entertaining the President, President's wife and Cabinet for an extended period. The sudden illness of Mrs. McKinley necessitated a stoppage of over a week here, and a temporary office was established at the Scott residence, with Messrs. W. L. Otte and Moore as operators. On the breaking up of the national headquarters, the President presented Messrs. Otte and Moore with a beautiful photograph of himself with his autograph thereon, in appreciation of their untiring services during the eventful days.

Electrician Louis McKisick was dispatched to meet the special bearing the Presidential party, and extend to them the hospitality of the Western Union on the coast, while Messrs. R. W. Whipple and E. Summerl, two of the most rapid senders in the service, were sent to Del Monte, Santa Cruz and San José to transmit press matter, etc.

Manager M. Marean, of the Washington, D. C., Western Union office, who was in charge of the telegraphing of the Presidential party, was a frequent caller at the office during their stay here.

Arrivals: Mr. G. H. Mellen, from Bakersfield; Miss J. A. Kottinger, from Hanford; Messrs. Brophy, Tomkins, Wulzen, G. A. Mitchell, W. R. Mitchell, and Higgins. Departures: Messrs. Dogge, Hansen and Goodwin. On vacation: Messrs. Weiler, Wade, Blodgett, McCormack, Yoel. Miss Rood is absent on sick leave.

Mr. S. C. Stevenson, of this office, has been transferred to Flagstaff, Ariz., Mr. J. E. Palmer, who has been at Flagstaff for a number of years, having been transferred to Reno, Nev.

Mr. W. H. Wilson has returned from Reno, where he has been attending the overland repeaters the past six months.

Mr. Wm. Williamson, of East Oakland, who has been at Hotel Arlington, Santa Barbara, the past year, has been transferred to Hotel Del Coronado, Coronado Beach.

Mr. Chas. Berg, formerly of this office, is taking night report at Santa Barbara. Miss Bacon is also now located at Santa Barbara, as day operator.

Mr. E. B. Peppin, for many years a member of the San Francisco force, has accepted a position in the Southern Pacific dispatcher's office at Fourth and Townsend streets.

Mr. W. W. McCandlish has located on a ranch near San José, and is enjoying the life of a gentleman farmer, after many years of service in the telegraph business.

ST. LOUIS, MO., WESTERN UNION.

Miss May Michaels, one of our bright branch office operators, was transferred to the main office recently.

Resignations: Mr. H. G. Thomas, to accept the managership of the Western Union office at Palestine, Tex.; Miss Kate Walsh, to accept an outside position in this city; Miss L. Rahm, on account of poor health.

Visitors: Messrs. C. W. Mayfield and Frank Shiflin, of Hot Springs, Ark.; Mr. B. F. Crockett, agent for the St. Louis, Kennett and Southern Railway at Caruthersville, Mo., on May 17 and 18. Mr. W. J. Costello, of 30 Broad street, New York, made quite an extended visit during May and June.

Mr. Albert J. Merklin, a brother of Miss Anne Merklin, a telegraph operator for the Missouri Pacific Railroad, stationed in St. Louis, returned from the Philippine Islands May 11, where he saw plenty of service with the Thirty-ninth Infantry, U. S. V. Mr. Merklin's probable appointment to a commission in the Regular Army will in no wise surprise his many friends.

Mr. Joseph Barry was added to the race track office force May 4.

Mr. Chas. W. Jost and Chas. Jost, Jr., returned from Chicago June 2, after an absence of four weeks.

Mr. P. A. Moake, manager of the New Orleans Western Union Board of Trade office, and Miss Eunice Wilkinson, of Chester, Ill., were married May 26. They spent part of their honeymoon at St. Louis, and will make their home at New Orleans. They have the best wishes of their many friends.

Beware of Ointments for Catarrh That Contain Mercury,

as mercury will surely destroy the sense of smell and completely derange the whole system when entering it through the mucous surfaces. Such articles should never be used except on prescriptions from reputable physicians, as the damage they will do is tenfold to the good you can possibly derive from them. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, O., contains no mercury, and is taken internally, acting directly upon the blood and mucous surfaces of the system. In buying Hall's Catarrh Cure be sure you get the genuine. It is taken internally, and made in Toledo, Ohio, by F. J. Cheney & Co. Testimonials free.

Sold by Druggists, price 75c. per bottle.

Hall's Family Pills are the best.

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TOPEKA, KAN., NOTES.

The telegraph force at the general office of the Santa Fe Pacific Railroad at this point is as follows: R. S. Statler, manager; R. S. Kersey and W. O. Appleby, Chicago, duplex; C. D. Crotchett and T. J. Farley, Las Vegas, N. M., duplex; W. H. Tandy, Kansas City, duplex; L. A. Laurent, Texas, local; J. L. Hinchman, Denver, local; T. H. Cofer, Newton, Kansas, local; J. F. Noel, Wellington and way; H. Wardenburg, around the room; J. F. Barrie, Chicago, local; night force: W. S. Thomas, operator in charge; W. Wardenburg, W. A. Baldwin, and L. M. Baird, operators.

Western Union: H. L. Bevelle, manager; F. V. Worden, chief operator; Wm. Redfield, operator; H. H. Lee, night chief.

Postal: J. C. Thomas, manager; B. F. McPherson, chief operator, and R. R. Williams, operator.

NEWPORT, R. I., WESTERN UNION.

Mr. Edward C. Austin has been transferred from the Perry House to the more important office on Bellevue avenue. Mr. Arthur C. Noonan, late with the Postal, fills his place at the hotel office.

Mr. J. J. Walsh, of Fall River, has been appointed manager of the Jamestown office, which opened June 3. Mr. Frank D. Sullivan is the delivery and telephone clerk, with James H. Anderson, Jr., as assistant clerk.

A new and handsome writing desk, with chairs to match, has been placed in the outer office for the benefit and pleasure of the public, which Manager Woodle always considers.

Mr. Charles T. Bliss, who has had large experience with the Western Union system of accounts, has been engaged as bookkeeper, the same as last year.

RICH VALLEY, MINN., CHICAGO GREAT WESTERN.

Agent Yale, at Empire, Minn., is taking a fifteen day vacation. He is relieved by Night Operator McElrath, from Rich Valley. F. J. McKinstry fills Mr. McElrath's place at the Valley.

Operator Collins has resigned his position at Sumner, Iowa, and will leave for the west shortly. Mr. J. M. Little succeeds Mr. Collins as day operator at Sumner.

Mr. Wm. E. Moore is now located at West Concord as night operator.

Mr. L. B. Fisk, formerly trick manager at Dubuque, Iowa, now holds down first trick at St. Paul.

Mr. J. P. Houston is once more with us as third trick man at St. Paul.

If some of our local men along the line would study their boards a little and take some good journal like the AGE, it would save our wire chief a lot of "grief."

PHILADELPHIA, PA., WESTERN UNION.

Mr. D. Good wishes to express through the AGE his sincere thanks to many friends for their messages, letters and personal words of sympathy to him in the loss of his mother, who, after a very short illness, departed this life on May 30. She was a good, kind and loving Christian mother, who could say as the apostle Paul said: "For me to live is Christ and to die is gain." Peace to her ashes; the soul has winged its way to a better world!

Mr. J. F. Hummel has resigned, to accept a position with The Associated Press at Altoona, Pa.

Messrs. D. A. Mahoney and T. J. Clinger, both veterans in the business, are confined to their homes by illness. Mr. Mahoney's condition is somewhat critical. We hope, however, to see them both with us again shortly.

Mr. D. E. McBride, of this office, was married June 12 to Miss M. T. LeGierse, of West Philadelphia. After an extensive wedding tour the young couple will reside at West Philadelphia.

Messrs. P. E. Durnin and C. O. Boggs, both from Washington, D. C., are arrivals.

Mr. Frank Pressel, a well-known old timer and gilt edged operator, now located in the west, was a recent visitor, as was also Mr. Harry McKelway, of Washington, D. C.

Messrs. Langstroth, Burns and Schultz were sent to Princeton, N. J., recently to help out during the commencement rush.

Amos L. Bougher, of Philadelphia, has secured the agency for the celebrated "Alexander" word counter for Philadelphia and vicinity; price, $3. It needs no recommendation. You simply press the button and it counts. Address orders to him, care Western Union Main Office, Philadelphia, Pa. —Adv.

NEW YORK, WESTERN UNION.

Mr. Henry W. Sauer, of this office, president of the Telegraphers' Aid Society, is rusticating at Loch Sheldrake, N. Y.

Mr. Joseph Gschwind, night eastern division traffic chief, was married June 3 to Miss Theresa M. Hermann, of Wakefield, R. I., the ceremony being performed at Mount Vernon, N. Y. Many congratulations were received by the happy young couple.

Mr. Joseph Meyer, of the eastern division, resigned June 1, to accept a position with the Stock Quotation Telegraph Company, of this city.

Miss Kitty McNally, for many years chief at city line switch, has resigned to go into a broker's office. Miss M. E. Kennedy, traffic chief of city line, takes Miss McNally's place.

Other resignations are: Mr. W. W. Friend, Misses M. M. Dougherty and M. Cleary.

The following have been appointed to the waiting list: Messrs. J. J. McDonough, P. G. Fondille, M. Hogan, I. C. Sickels, W. L. Heptig, F. W. Wolf, I. G. Kelly, J. P. Rohling, J. H. Ryan, R. T. Kerin, M. J. Dixon, E. L. Bloomberg.

Appointments: Messrs. W. J. Dickson, G. R. Benjamin, Miss A. M. Coughlan, E. McBride, R. C. Rattray, J. J. Riley, W. L. Forrester.

Transferred to summer offices: Misses J. V. Carrabrine and J. V. O'Brien and Messrs. Howard Smith and A. L. Wright.

Among the many beautiful floral pieces at the funeral of Mrs. E. C. Cockey, was one sent by the Magnetic Club.

Miss Nellie Flynn has been promoted to city line traffic chief, to fill the vacancy caused by the advancement of Miss Kennedy.

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Mr. E. E. Brannan, traffic chief of the Jerseys, is on a vacation which he is spending with W. J. Bodell at Fortress Monroe, Va.

Mr. John Rathbone, who had an abscess in his left eye, is in the Ophthalmic Hospital for treatment. It is thought he will be out in a week or two.

Miss Nellie T. Calver has gone to Minersville, Pa., to recuperate.

Messrs. J. F. Paddock and Perry F. Irish have resumed duty after long illness.

Mr. Fred T. Meyer is seriously ill at the Williamsburgh Hospital, Brooklyn.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

Correspondence.

Editor TELEGRAPH AGE:

I have received many inquiries from operators throughout the country, asking to what I attributed my recovered grip.

You will do me a favor if you will publish this in the AGE for the information of those I am unable to directly reach.

My arm gave out after two years of constant and rapid work on the Philadelphia wire, during which time the operator and myself exchanged an average of 640 messages a day. In October, 1899, I was obliged to seek a position where little or no sending was required. From that time until April of the present year, to send was a severe strain to my arm. During the last week of April I tried the Twentieth Century key. In the course of a few days I found I could send on the new key with considerable ease. During working hours I made constant use of the new key when sending, changing the lever to whatever position best suited the tired muscles. When sending on the new key, with the lever at right angles until I felt my hand becoming tired, I changed the lever to a perpendicular position, thereby bringing into action other muscles of the arm. After using the new key about three weeks I sent 63 messages in an hour. Since using the Twentieth Century key I have worked leased press circuits at the Journal, sending continuously for eight hours on the regulation key and handled a large amount of press. I did not feel any strain on my arm after doing this work.

I attribute the recovery of the grip I now possess to one month's constant use of the Twentieth Century key, and by further use of this new key I hope to obtain much better results.

Very truly yours, T. F. KEHOE.

New York, June 5, 1901.

Subscribe for TELEGRAPH AGE, $1.50 per year.

Personal Mention.

Gen. Thomas T. Eckert, president of the Western Union Telegraph Company, New York, together with his family, has taken up his residence at Long Branch, N. J., for the summer.

Mr. W. D. Sargent, general manager of the New York and New Jersey Telephone Company, New York, an old time telegrapher, sailed for Europe a few days ago on a brief vacation.

Mr. Arthur Hale, of Philadelphia, superintendent of telegraph of the Pennsylvania Railroad, has been appointed assistant general manager of the Baltimore and Ohio Railroad Company.

Kidnappers for some time past have threatened to kidnap the youngest daughter of Mr. Thomas A. Edison, of Orange, N. J., but the veteran of the key has his house closely guarded, and a hot reception awaits any intruders on the premises.

Mr. L. C. Weir, an old time and military telegrapher, now president of the Adams Express Company, New York, was a member of the New York Chamber of Commerce party which lately paid its respects to King Edward of England.

Major R. B. Hoover, until recently manager of the Bell Telephone Company's exchange at Springfield, Ohio, has resigned to accept the position of secretary of the National Magneto Telephone Company, of New York. Mr. Hoover will be succeeded by H. P. Miller, who has been identified with the Bell Company at Chicago. Mr. Hoover is an old time telegrapher.

Capt. William Brophy, formerly of the Boston wire department, has left the service, and of late has been doing expert work for the Boston Edison Company and other parties. As one of the most competent experts in the country in regard to aerial circuits, subways and interior wiring, Captain Brophy should find his services, now happily available, in very general demand.

Mr. George F. Porter, of New York, manager for Mr. W. R. Brixey, manufacturer of the Kerite and Insulated Wires and Cables, has gone to Alaska. It is Mr. Porter's intention to lay the Brixey Kerite cable, for which the Government recently contracted. The cable is 125 miles in length, and is to connect Juneau and Skagway, Alaska. This is the second large order the Government has given for Kerite cables for Alaskan work.

Mr. George C. Ward, vice-president and general manager of the Commercial Cable Company, New York, and a member of the New York Chamber of Commerce, was one of the party of twenty-two delegates from that body, who on June 1 were guests of King Edward at Windsor, England. Mr. Ward said: "When we saw the Queen we could scarcely believe it was she. She looked so young and charming. Both the King and Queen appeared to be in splendid health, and they certainly were in the best of spirits."

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Miscellaneous Items.

Mr. J. C. Wheaton, for the past three years in the Government Signal Service at Havana, Cuba, has returned to New York, where he expects to locate.

Out of a party of twenty-two members of the New York Chamber of Commerce, who recently, by invitation, visited the King of England, five of them were representative telegraphers.

Mr. W. Y. Nolley, manager of the Postal Telegraph-Cable Company, Shreveport, La., is off on a month's vacation at Hot Springs, Ark. During his absence Mr. C. C. Hollenback is acting as manager.

Mr. G. C. Zachow, an operator, on account of ill health, severed his connection with the Western Union Telegraph Company, at Milwaukee, Wis., and accepted a mercantile position at Janesville, Wis.

Mr. Arthur H. Brown, lately of the electrical engineer's department, Postal Telegraph-Cable Company, New York, has accepted a position with the Bunnell Telegraphic and Electrical Company, 110-116 Beekman street, this city.

Mr. F. M. McClintic, of Memphis, Tenn., one of the best press operators in the United States, has abandoned the key and gone into the typewriter business in that city. His telegraph friends everywhere wish him abundant success.

Mr. George W. Morris, of New York, has resigned his position with the Long Distance Telephone Company to re-enter the telegraph service. He will have charge of the Gold and Stock Telegraph Company and Commercial News Department interests at Pittsburg, Pa.

J. W. Sampson, a well-known telegrapher, employed by the Western Union Telegraph Company in Washington, was stricken with paralysis on June 8, and is in a critical condition. Mr. Sampson has been in the employ of the Western Union Company for over thirty years, and is well known throughout the country.

Mr. J. A. McClary, of the Postal Telegraph-Cable Co., who, with W. L. Stoddard and R. E. A. Doerr, of the Mail and Express, New York, has just returned from a very enjoyable trout fishing trip to the Adirondacks. Mr. McClary is one of the oldest employees and managers of the Postal Company, and has returned to that company after an absence of seven years engaged in telephone construction and other work.

New York Visitors.

Mr. J. W. Larish, electrician of the Western Union Telegraph Company, Boston, Mass.

Mr. W. S. Logue, of Chicago, Ill., western sales agent of the Edison Manufacturing Company, of New York.

Those who contemplate subscribing for TELEGRAPH AGE, and who would first like to inspect a sample copy, should not fail to write for the next issue.

Obituary.

William C. Daley, an operator of Baltimore, Md., died on June 3.

Charles J. Eltz, a telegrapher, died at Reading, Pa., June 3, aged 40 years.

Harry C. Bliss, an operator in the Western Union Telegraph office at Bangor, Me., and a son of Charles E. Bliss, the manager, died in that city June 9, aged 45 years. He was an expert operator, well known throughout New England.

James H. O'Donnell, a sergeant in the Signal Corps, in the province of Panay, Philippine Islands, died on May 3. He was a native of Rhode Island, an expert telegrapher, and prior to entering the army was in The Associated Press service in New England.

DEATH OF MRS. EDWARD C. COCKEY.

Mrs. Mary Ann Cockey, wife of Edward Cromwell Cockey, general purchasing agent of the Western Union Telegraph Company, New York, died suddenly at her home, No. 235 West 127th street, New York, on Friday, June 7. The funeral was held at the family residence on Monday evening, June 10, and drew together a large assemblage of friends, very many telegraph officials being present. Mrs. Cockey was particularly well known to the telegraphers of New York, by whom she was held in high esteem, especially since the well remembered meeting of the Old Time Telegraphers held in this city in 1895, when her husband was president of the association and she officiated as chairman of the ladies' entertainment committee. A woman of infinite tact, charm of manner and executive ability, she won enthusiastic praise for her efforts on that occasion, the remembrance of which has never failed. The sympathy of a wide circle of telegraph friends has been most generously extended to Mr. Cockey.

Resignations and Appointments.

Mr. Chas. F. Avery has been appointed acting manager for the Western Union Telegraph Company at El Paso, Tex., versus J. W. Brooks, resigned. Mr. A. R. Zimmerman is acting as chief operator at El Paso.

The United States Navy, through Admiral Bradford, chief of the Navy Bureau of Equipment, has officially adopted, so far as possible, the use of wireless telegraphy and recommended, in the report of the bureau which investigated the question, that the use of homing pigeons be discontinued as soon as wireless telegraphy can be introduced successfully into the navy. No new pigeon cotes will be established.

The testimony of progressive operators is that TELEGRAPH AGE is so thoroughly comprehensive in character as to make it indispensable to those who would keep informed. Its technical articles are of high practical value. Write for a free sample copy.

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Third Annual Banquet New England Corps of the Associated Press.

The third annual banquet of the New England Telegraph Corps of The Associated Press was held in Boston on June 2. Members and guests were present from all sections of New England, six States being represented. The banquet was held at Hotel Cecil, and the menu was elaborate and handsomely served.

Among the guests present were Mr. J. H. Fahey, New England Correspondent of The Associated Press; H. F. Wood, J. H. Johnson, D. Roy Newcombe and L. C. Wedmore, of Boston; H. C. Bunting, New York; Wm. E. Kettles, Lynn, Mass.; Elmer R. Joy, Haverhill, Mass.; D. E. Hennessy, New London, Conn.; J. A. Hosey, New Bedford, Mass.; J. W. Walsh, Lowell, Mass.; J. W. Taylor, Manchester, N. H.; P. M. Loughlin, Springfield, Mass., and N. E. Stafford, Hartford, Conn.

Mr. Fisher, president of the corps, presided, and gave "toasts" suggestive of incidents happening on the circuits during the past year, the "points" being caught without "breaks" and producing much merriment at the expense of the responding speakers. Good nature and spirits prevailed, and the occasion was the happiest of any previous meetings.

After the fun subsided a business meeting was held. The reports of officers showed the organization in a prosperous condition. The treasury showed a good balance after paying several hundred dollars in sick benefits during the past year. Amendments to the by-laws and constitution were adopted, the tenor of which was to place the organization on firmer business lines. Eight new members were initiated, raising the roster to high-water mark.

The following officers were re-elected: Mr. Ernest M. Fisher, Boston, president; Mr. Park J. Stewart, Manchester, secretary, and Chester G. Rogers, Boston, treasurer. Mr. G. W. S. Burroughs, of Providence, was elected vice-president, succeeding Mr. Robert E. Grandfield, of Fall River.

Among the members present were: C. A. Price, Providence; E. J. McLaughlin, Worcester; G. W. S. Burroughs, Providence; A. M. Stevens and S. P. Nash, Portland; H. C. Bolles, New Bedford; P. J. Stewart, Manchester; J. J. Keating, New Haven; C. F. Whitney, Lowell; P. J. O'Connor, Lewiston; E. J. Neil, Lawrence; R. E. Grandfield, Fall River; G. F. Gannon, Concord; G. S. Bolles, Brockton; B. J. Foley, Biddeford; Wm. E. Nelson and J. F. Maloney, Bangor; S. J. Hegarty, Augusta; W. H. Edworthy and C. G. Rogers, Boston.

The Edison Storage Battery Company.

Mr. Thomas A. Edison has, with Messrs. Herman E. Dick, Walter S. Mallory and William E. Gilmore, of Orange, N. J., organized a company to manufacture his new storage battery. It is thought that the new company, which has a capital stock of $1,000,000, will be the parent or controlling body of a number of similar organizations to be organized later for the same purpose.

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Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; price, $1, reduced from $1.50.

"AMERICAN TELEGRAPHY," by William Maver, Jr., enlarged and improved; 600 pages; 475 illustrations; clear, lucid and comprehensive in its treatment of the subject, the ranking work of of its kind, and of high practical value to every telegrapher; bound in cloth; price, $3.50.

"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume, of which but a few copies of the first edition now remain, presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; price, $5.

"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones, 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

"TALES OF THE SIERRAS," by J. W. Hayes, 136 pages, illustrated. This volume, full of laughable incident, presents a collection of original and well told telegraph sketches, partaking in character largely of the former wild life of the frontier. The fun in the book, which never descends to vulgarity, is accentuated by droll illustrations by John L. Cassidy; bound in cloth, $1.10.

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The Municipal Electricians.

At a meeting of the Executive Committee of the International Association of Municipal Electricians, held in Philadelphia, Pa., June 3, the following topics of papers to be read at the sixth annual convention of the association, which will be held at Niagara Falls, N. Y., September 2, 3, 4, were selected and assigned:

"The Need and Value of a Set of Rules for Outside Construction," P. H. Trout, Jr., Lynchburg, Va.; "Underground Electrical Construction from a Municipal Standpoint," Edward F. Schurig, Omaha, Neb.; "The Protection of Fire and Police Telegraph Wires from High Tension Currents and Lightning," W. M. Petty, Rutherford, N. J.; "Improved Storage Battery for Municipal Purposes," J. W. Aydon, Wilmington, Del.

A paper will also be read by a well-known electrical engineer dealing with the advisability of placing high and low potential conductors in the same conduits and man-holes.

The committee consists of Morris W. Mead, president, of Pittsburg, Pa.; John W. Aydon, of Wilmington, Del.; Adam Bosch, of Newark, N. J.; Frank P. Foster, of Corning, N. Y., and Frank C. Mason, of Brooklyn, N. Y.

After adjournment the committee, by invitation, called on Chief Walker, of the Electrical Bureau of Philadelphia, and secured from him a partial promise to appear at the coming meeting of the association and give the members a talk on "The Lights and Shadows of Municipal Experiences from a Municipal Standpoint." Chief Walker introduced the committee to his successor, John C. Sager, who was already known to the leading members of the association, and were entertained by him later at the Hotel Stratford.

The Municipal Electricians now have representatives in 110 American and Canadian cities, and are in a growing and flourishing condition. Special arrangements for transportation have been made by all the leading railroads, which will permit the members of the association, their families and friends, to attend the association meeting and at the same time visit the Pan-American Exposition at Buffalo. Special arrangements for their entertainment have been made by Mayor Butler, of Niagara Falls, and Chairman Donohue, of the executive committee of the association.

The articles, "Some Points on Electricity," published regularly in TELEGRAPH AGE, are filled with practical information for the up-to-date operator. Send for a sample copy.

A Suggestion.

Editor TELEGRAPH AGE:

The success of The Telegraphers' Mutual Benefit Association, The Gold and Stock Life Insurance Association, the many aid societies, the equally numerous building and loan associations, proves that telegraphers possess the necessary qualifications to be successful business men. The existence of these societies also proves that a "Community of Interest" exists and is being fostered in and by the craft. There is but one link missing in this "Community of Interest" phase, to wit, a layman's voice in the management of the telegraph industries. There is certainly a "Community of Interest" between Capital and Labor. If the invested capital could be brought to realize that a practical telegrapher on the board of directors would be of greater service to the capitalist than an association of rich men not entirely familiar with the telegraph and its wants, perhaps this object might be achieved. True, there are some practical telegraphers in the directory, but there are not enough. Maybe at this very moment some director, seeing the logic of this statement, would like to give it a trial for one term anyhow.

Who would select the layman that would be the representative of the craft?

We have no truer representative of the rank and file throughout the country than the Telegraphers' Mutual Benefit Association, and when it assembles in annual convention that association could elect our representative. Every one would be satisfied with the result of such an election.

Yours respectfully,

"COMMUNITY OF INTEREST."

New York, June 7, 1901.

Fortunate Operators.

It is a singular thing that no less than eight of the Carnegie partners were formerly telegraphers. Before the days of the telephone the operators sat practically at the elbows of the managers and heads of departments in their private offices. Under such conditions the Carnegie telegrapher who had it in him naturally got an opportunity sooner or later to demonstrate his worth in other ways than by merely working a key.

In these days when technical knowledge is of such value to the telegrapher who would master his profession, its acquisition becomes of supreme importance. A subscription to TELEGRAPH AGE will supply the information every operator needs.

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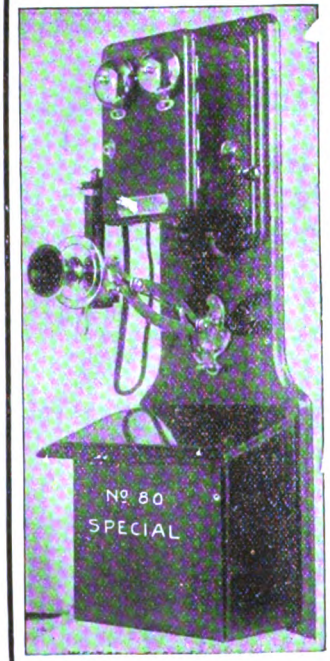
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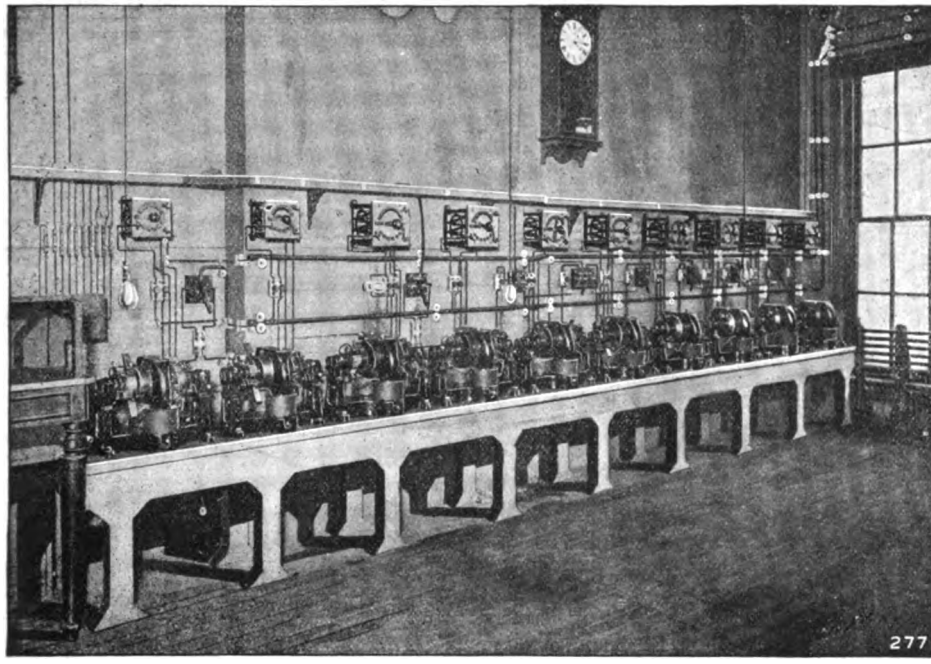
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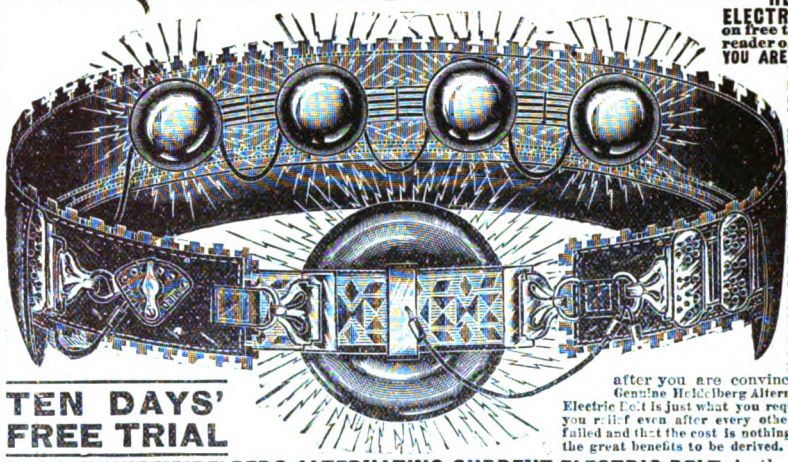
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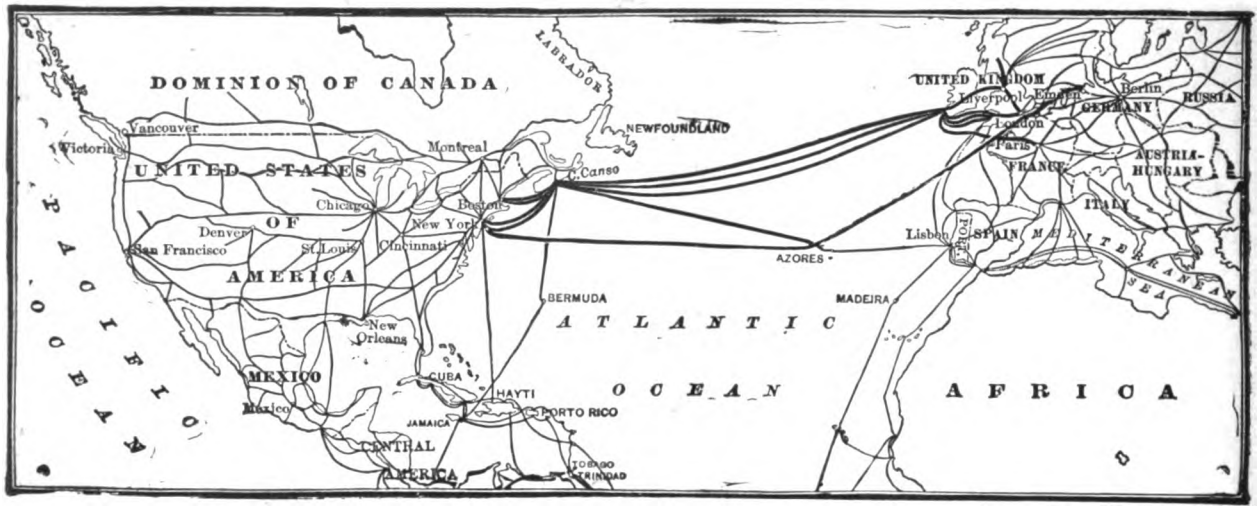
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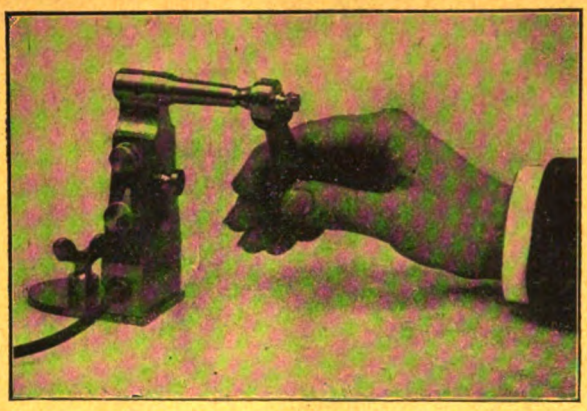
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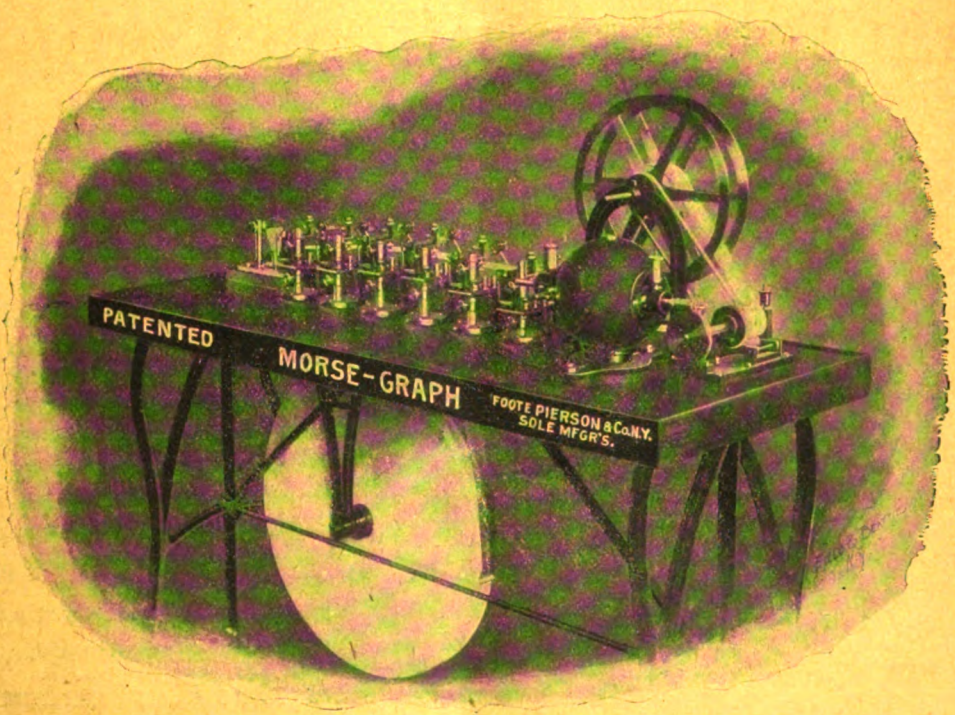
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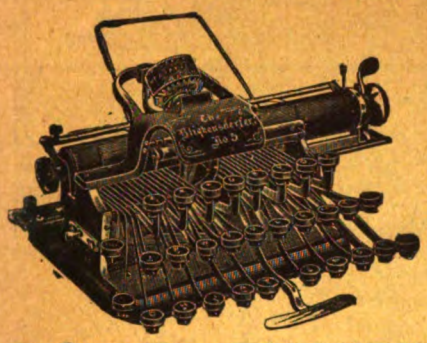
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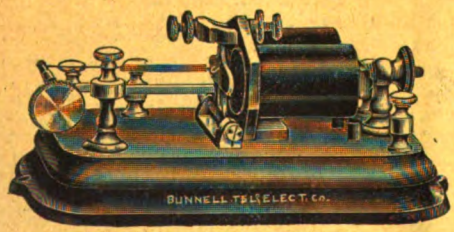
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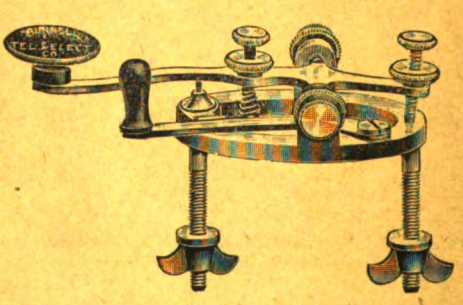


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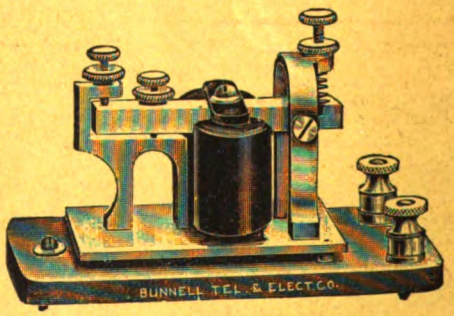


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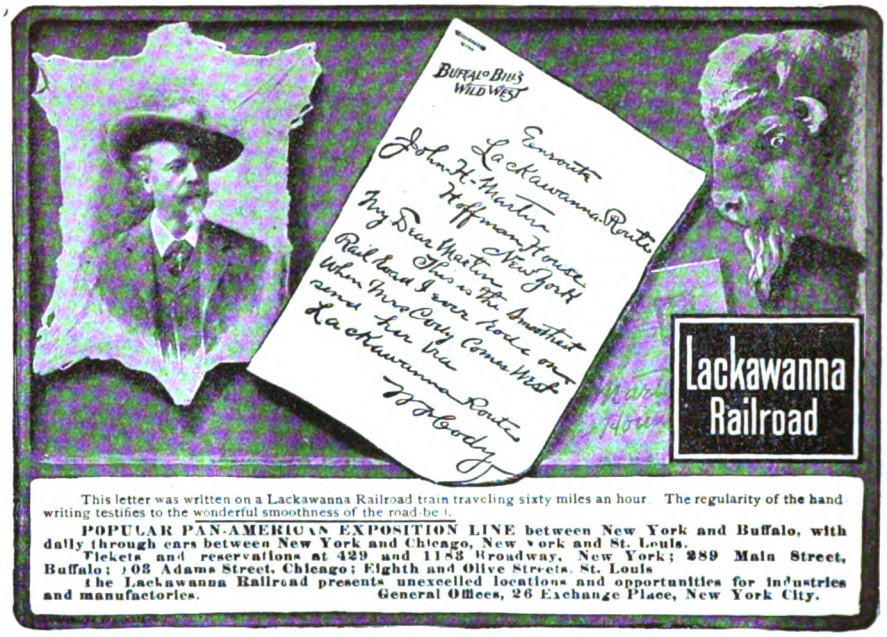
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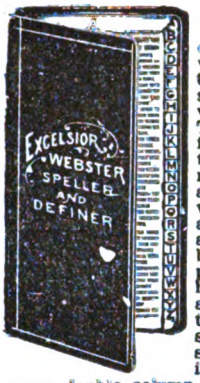


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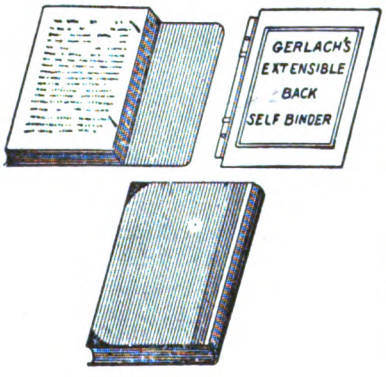
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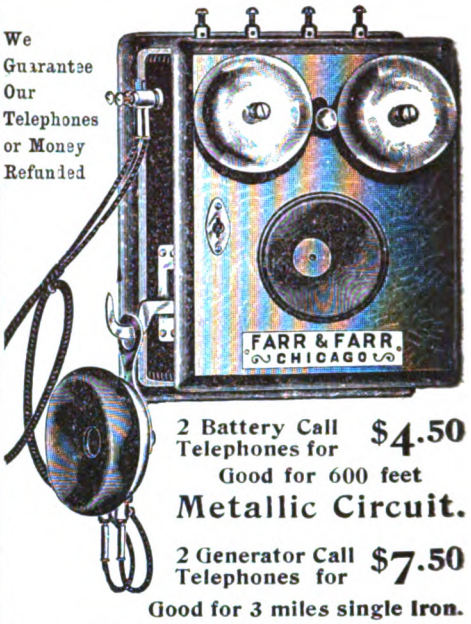
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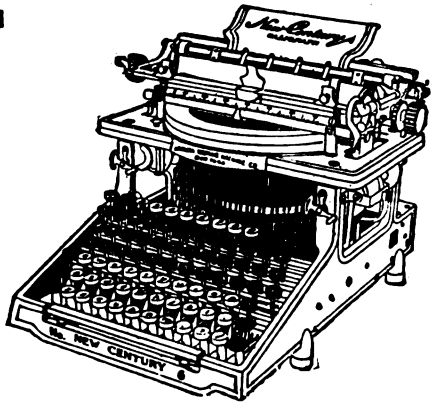
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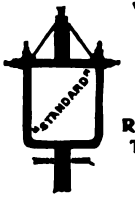
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THE TELEGRAPH AGE.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

[In our issue of May 1, in the article appearing in this column on "Wire Gauges," the illustration used therein and the brief text descriptive thereof, although taken from my "Pocket Edition of Diagrams," where it appeared with duly acknowledged permission, should have been credited likewise to the "Pocket Handbook," published by the Standard Underground Cable Co., of Pittsburg, Pa., from which it was originally obtained.—W. H. JONES.]

A Chicago correspondent requests the writer to explain the manner in which an intended signal is registered at the distant station on a polar duplex circuit when the polarities of the two batteries oppose each other on the main line.

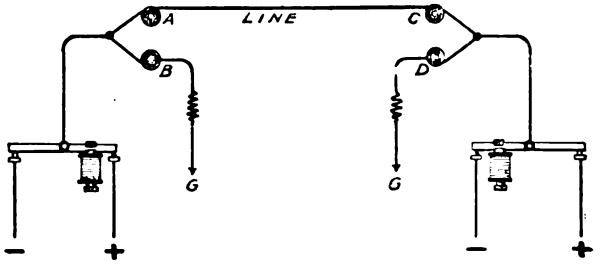
The question was answered through this journal less than a year ago, but as the problem still continues to perplex a great many students, we will again try to make the point clear.

After we have taken a line balance and the distant station is still on the "ground," coils A, B and C, each receive an identical strength of current derived from our home battery. Coil D receives no current because the distant battery is cut off. Our own current will not flow through the resistance in coil D, because it can take a short route to the distant ground through the pole changer and battery after traversing coil C and the line.

The iron core between coils A and B will not become magnetized under these conditions, because the magnetism in coil A is killed by the counter magnetic effect produced by the current in coil B; in other words the home relay is magnetically balanced. Coil C, however, is not opposed by a current in coil D, hence the distant relay becomes magnetized and the armature belonging to the distant relay is attracted to, or repelled from the local contact points according to the direction of the current we send out.

Now, when the distant station "cuts in," his battery is added to the circuit, and the increment of current thus obtained destroys the magnetic balance in the relays at both ends of the wire. That is to say there is an effectual magnetizing current flowing through one of the two coils at each station regardless of whether the polarity of the two multiplex batteries oppose or assist each other.

If the polarity of the distant battery should oppose ours at the moment we are making a signal, of course our own current will be stopped, and so will that from the other end, so far as the main line is concerned, but the current which continues to flow through the artificial coils B and D, magnetizes their respective relays and necessarily attract or repel their own armature according to the polarity of the home batteries.



Now, the secret of how the intended outgoing signal is registered at the distant station is, that the artificial coils are so wound that when they act alone—that is when the current in the main line coils is killed—they give their own relays the same magnetic polarity as the distant battery would have produced had the main line current reached its destination.

Just bear in mind that the home artificial line coil is always trying to make the identical signal that the incoming current produces on our relay, but is ineffective as long as the current flows through both coils of the relay. But the moment anything happens to its companion, the artificial coils jump in and registers the intended incoming signal.

A reader of this journal wishes to know how he can construct an ammeter cheaply which will measure strong electric currents with reasonable accuracy.

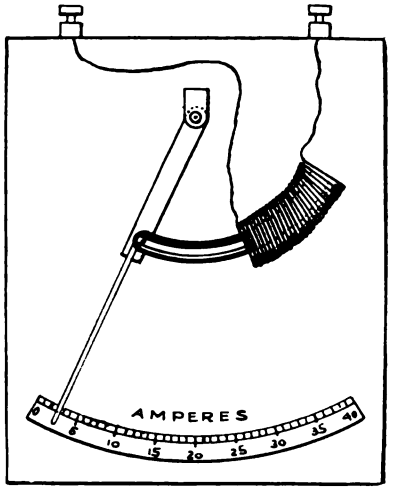
A very simple and fairly accurate instrument may be made by means of a solenoid and a short

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bar of soft iron attached to a pointer, as shown in the accompanying diagram. It is constructed on the principle that a solenoid, a hollow coil of wire, when energized by a current of electricity, will tend to suck into its center any small piece of iron within its influence.

The solenoid may be composed of a comparatively few turns of coarse copper wire, where the requirement is for strong currents only. For smaller currents the number of turns should, of course, be proportionately greater. The scale may be graded by comparing the deflection of the pointer with that of a standard meter, when both are influenced by the same strength of current.

It will be seen that when the iron is drawn within the solenoid it carries the pointer over a certain portion of the scale, while the distance it travels depends entirely upon the strength of the current traversing the coil, the value of which will be indicated by the figure or figures at the point where the needle stops.



In like manner a voltmeter may be constructed very much upon the same plan: in fact, the only difference lies in the solenoid, which must contain a very high resistance. The latter is usually composed of a coil of fine German silver wire, because that metal is of unusually high resistance and otherwise well adapted for the purpose.

The principle upon which the voltmeter is operated is taken from Ohm's law, $R \times C = E$. Hence if we multiply the known resistance of the solenoid by the strength of the current flowing through the coil the product must represent the value of the electromotive force.

By properly grading the scale in volts by means of comparisons made with a standard voltmeter and given strength of current direct readings in electrical pressure are thus obtained.

The degree of accuracy in such readings depends upon having the resistance of the solenoid so much greater than that of the circuit up to the point where the voltmeter is inserted, that the smaller resistance may be practically ignored.

The discrepancy in the readings should not necessarily exceed one or two per cent in extreme cases.

Recent Telegraph Patents.

A patent for a printing telegraph receiver has been taken out by J. M. Joy, of New York city.

A patent for a printing telegraph, No. 675,380, has been granted to Robert A. Fowden, of Philadelphia, Pa.

A patent for a printing telegraph, together with an improvement on the same, has been awarded to F. H. Littlefield, of St. Louis, Mo.

A patent for a protector of telegraph and telephone instruments has been granted to Jean Piel, of Schöneberg, near Berlin, Germany.

A patent for a printing telegraph transmitting apparatus has been issued jointly to K. Himrod, of Chicago, and I. R. Tucker and C. C. Hinckley, of Aurora, Ill.

T. M. B. Association.—Assessment No. 380 has been levied to meet the claims arising from the deaths of James D. Reid, of New York; John T. Pyle, of Midway, Pa.; Robert T. Quarterman, of Natchez, Miss.; John A. Ecker, of Fayetteville, N. Y.; Wilmer H. Apgar, of High Bridge, N. J.; Michael S. Higgins, of Kansas City, Mo. With this assessment is printed the following:

Your attention is specially directed to the announcement in this notice of the death of Hon. James Douglas Reid. Mr. Reid was one of the founders of this association, and during the early years his career was marked by untiring zeal and devotion to its interests. He acted as treasurer from October, 1867, until March, 1872, when he resigned, and again from November, 1873, until November, 1877, when he was elected president, serving in that capacity until November, 1881. Prior to November, 1877, the office of president did not exist; Mr. Reid was therefore the executive head of the association, with the exception of the short interval stated above, for fourteen years. He lived to see the association, of which he may be considered the parent and founder, become the oldest fraternal life insurance association in the country; an association which has paid to the beneficiaries of deceased telegraphers nearly $1,000,000, and is at present disbursing benefits averaging $50,000 yearly; with a membership of more than 5,000, and a reserve fund for the protection of its present and future interests of $180,000; the largest reserve in proportion to liabilities held by any similar institution.

Resignations and Appointments.

Mr. W. C. Black, for several years past manager of the Postal Telegraph-Cable Company, Denver, Col., has been promoted to be assistant superintendent of the same interests at that point.

Mr. W. S. Truesdale, manager of the Postal Telegraph-Cable Company at Columbus, Ohio, has been promoted to be the assistant to the superintendent of the same interests, with headquarters at Chicago, Ill.

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Personal Mention.

Mr. A. S. Brown, electrical engineer of the Western Union Telegraph Company, New York, will spend a prolonged vacation in Connecticut and Maine.

Mr. E. C. Platt, treasurer of the Postal Telegraph Cable-Company, sails for Europe early in July for his usual vacation. He expects to visit the lakes of Scotland.

Mr. Charles P. Bruch, assistant general manager of the Postal Telegraph-Cable Company, New York, is sojourning for the summer at Greenwich, Conn., and spending his spare time between a boat and the piazzas of the Indian Harbor Yacht Club.

Col. A. B. Chandler, Chairman of the Board of Directors of the Postal Telegraph-Cable Company, New York, has gone to Randolph, Vt., his native place, where he will spend the summer. His trip thither was made by the way of Buffalo, where he went to visit the Pan-American Exposition.

The marriage of Miss Ethel Chandler Baker, daughter of Mr. William H. Baker, vice-president and general manager of the Postal Telegraph-Cable Company, New York, to Mr. Harry Le Roy Moody, of Marion, Mass., occurred on June 18, at her home in Brooklyn. The wedding gifts included presents from Mr. John W. Mackay, president, and other officers of the Postal Telegraph and Commercial Cable companies

Miscellaneous Items.

Mr. E. M. Fisher, manager of the Western Union Telegraph Company, Portsmouth, N. H., has, with a party of friends, gone to the Moosehead Lake region, Maine, on a fishing trip.

The Western Union telegraph operators of Omaha, Neb., were recently complimented by the newspapers of that city for their liberal contribution to the Fresh Air Fund, organized in that city to assist the poor in enjoying summer outings.

Mr. E. M. Harvey, an American telegrapher, who has been in Cuba for the past six months, has returned to New York from San Domingo, where he was last located. Mr. Harvey is a native of Norfolk, Va., and expects to remain in New York.

The Morse Club of New York, through its secretary, M. H. Kerner, suitably decorated the Morse statue in Central Park on Decoration Day. The Morse Club has assumed this duty for the past ten years, and on every Decoration Day during that period suitable wreaths and flowers have been placed on the statue of the inventor of the telegraph, which is located near the Seventy-second street and Fifth avenue entrance to Central Park.

Mr. E. J. Nally, general superintendent of the Postal Telegraph-Cable Company, Chicago, in a recent note to Mr. W. G. Phillips, our Chicago Postal local agent, writes as follows:

"I thank you for reminding me that my subscription to TELEGRAPH AGE has expired. I take pleasure in enclosing herewith my check for a renewal subscription.

"This gives me an opportunity to say what I have long felt, that is, that Mr. Taltavall, of the AGE, is doing splendid work. If the fraternity generally will avail themselves of opportunities for study and advancement and will follow the sensible advice contained in the editorial pages of the AGE from month to month they cannot fail to be benefited."

Obituary.

J. N. Ansley, an old-time telegrapher, died at Aiken, S. C., on June 15, aged sixty-five years.

A. O. Brooks, a telegrapher of Kansas City, Mo., was drowned while bathing in the lake at Fairmount Park, Mo., on June 17.

Robert H. Brown, a former telegrapher, and for the past ten years connected with the Carnegie works at Homestead, Pa., died at his home in Pittsburg, Pa., on June 9. He was a native of Pennslyvania and a veteran of the Civil War.

Miss Hettie Humphreys, a well known telegrapher in Nevada, died at Carson City, that State, on June 12. She was thirty-four years of age and for twelve years had been in the employ of the Western Union Telegraph Company at Carson.

Mrs. C. T. Glover, an operator at Corry, Pa., wife of C. T. Glover, an operator at Sheffield, Pa., on June 21, on answering a call on one of the wires, received a telegram addressed to herself announcing that her husband had been killed by a railroad train.

Charles D. Tull, an old telegrapher, and member of the United States Military Telegraph Corps, died at Monroe, Mich., on June 22. His death was due to a fall sustained in Chicago. Mr. Tull served principally in the Western Division of the Army dring the Civil War.

Samuel T. Goodwin, superintendent of the American District Telegraph Company at Troy, N. Y., was shocked to death on June 6 by coming in contact with a live wire on the roof of the Troy Club, where he was superintending some work. He was twenty-nine years of age.

Mr. E. W. Parsoné died recently in Brazil in his fifty-third year, having for the past thirty years been intimately connected with the submarine telegraph industry. In 1870 Mr. Parsoné joined the staff of the late Sir Charles Bright, and was connected with the cable laying of the West Indian & Panama Company. In 1884 he was appointed manager of the West African Telegraph Company and organized the service which connects the Cape Verde Islands with the principal settlements on the west coast of Africa. At the time of his death he was manager and secretary in Brazil of the South American Cable Company. The governments of France and Portugal had decorated him for his services, and he was also a Fellow of the Royal Geographical societies of London, England, and Lisbon, Portugal.

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Outing of the Magnetic Club.

The regular summer outing of the Magnetic Club of New York, occurred on the afternoon and evenning of June 25, the celebration being held as usual at Cove Hotel, Livingston Station, Staten Island. Through the courtesy of the Western Union Telegraph Company, the steamer "Western Union" was placed at the disposal of the excursionists, and made two trips across the bay to the point of destination during the afternoon, leaving the foot of Cortlandt street, New York, at 1.30 o'clock and again at 3.30 o'clock, carrying jolly telegraphers both times. Upon the arrival of the last boat at Staten Island a photograph of the excursionists was taken.

The hotel grounds were well adapted for recreation, and here a number of sports were indulged in, and much fun and merriment followed.

The baseball game resulted in a tie, 8 to 8.

The 100 yard dash, open for all, was won by W. A. Kane, with J. W. Gibbons, second and A. Duffy, third.

Then another 100 yard dash, for members only, was won by Wm. Fleming, with J. Connolly, second and C. Jacobson, third.

A 220 yard dash, open for all, was won by A. Wintracken, D. J. Gallagher coming in second and C. H. Seymour, third.

A 220 yard dash for members only was won by D. J. Murphy, with C. Jacobson, second, and R. J. Murphy, third.

In the "old gentlemen's" race, Senator William L. Ives won in handsome fashion, with W. W. Briggs a close second.

In the ball throwing contest Harry S. Young, Jr., came out first, G. G. Davis, second.

Dinner was served at 7 o'clock, President F. W. Jones welcoming all the guests in a graceful speech.

The following gentlemen were elected members: A. E. Price, L. F. Requa, R. W. Shefler, D. G. Hohan, W. Horton Baker, W. R. Pope, Clark E. Diehl and H. S. Young, Jr.

Resolutions regarding the deaths of A. G. Hummel and D. C. Bunnell, and expressing sympathy with their families were adopted. Sympathy was expressed with Mr. E. C. Cockey for his bereavement in the death of his wife.

Addresses were made by Messrs. H. L. Shippy, T. H. Morris and others.

Prof. David Bimberg rendered some selections on the violin, J. E. Stanley sang "Annie Laurie" and Geo. C. Davis sang "The Scientific Man."

Owing to the fact that there were so many prizes donated it was decided that each member present should have a chance at drawing for those not awarded to the winners of the games. Mr. T. L. Cuyler, Jr., was selected to do the drawing.

The prizes and by whom contributed were as follows: Foote, Pierson & Company, a Twentieth Century telegraph key; F. M. Ferrin, of Boston, a scarfpin; Manufacturers' and Inventors' Electric Company, a Morse watch; Fred. Pearce, medical battery; J. H. Bunnell & Co., medical battery; Patterson Bros., electrical cigar lighter; R. E. Fagan, a boneless ham; Bridgeport Brass Co., two lamps; E. G. Willyoung, gold cuff links; R. E. Gair, a globe of the world; C. P. Bruch, desk paper weight, pipe and tobacco and "King's Hand Book of New York"; Surbrug Co., box of tobacco; Young Bros., outing caps; President F. W. Jones, various prizes.

The following members won prizes: W. C. Burton, outing belt; J. C. Watts, toilet soap; W. Maver, Jr., gold scarfpin; H. L. Shippy, silver cigar cutter; T. J. Smith, book; G. F. Fagan, ornamental clock; A. E. Price, silk umbrella; J. H. Montgomery, American watch; T. E. Fleming, a purse; M. H. Kerner, gold cuff links; Geo. Roehm, bottle perfume; Col. A. B. de Frece, toilet soap; J. McParlan, a doll; F. W. Jones, Ingersoll watch; A. H. Brown, gold cuff links; Donald Murray, toilet soap; T. A. Brooks, Morse watch.

The judges were W. Maver, Jr., and John Brant.

The following were among those present: J. F. Ahearn, C. Jacobson, J. H. Robinson, W. W. Briggs, T. A. Brooks, Geo. W. Fleming, F. C. Mason, C. H. Seymour, Fred. Pearce, A. Wintracken, L. G. Egbert, Donald Murray, Chas. Pearce, J. F. Cleverdon, A. H. Brown, J. Edmund Stanley, F. W. Jones, Prof. David Bimberg, Jas. McParlan, Col. A. B. de Frece, Geo. Roehm, M. H. Kerner, R. W. Shefler, H. L. Garwood, C. W. Morris, F. L. Stowe, E. B. Bruch, C. P. Bruch, Thos. E. Fleming, A. E. Price, J. H. Montgomery, Geo. C. Davis, F. Northrup, W. L. Ives, D. J. Murphy, D. W. McAneeny, W. Finn, J. D. Mann, Alex. Kline, G. T. Olmstead, C. Brooks, J. A. Dunn, J. Whitney, Thos. G. Singleton, J. W. Connolly, D. J. Gallagher, H. S. Young, Jr., R. C. Sinclair, G. F. Fagan, E. F. Peck, James Kemoster, C. M. Peck, L. F. Dowling, T. J. Smith, C. L. Chase, E. A. Kane, J. A. McClary, Jos. O'Donnell, F. M. Ferrin, M. A. Henderson, H. L. Shippy, W. L. Fairchild, Geo. E. Harding, W. T. Larkin, J. L. Vail, John Brant, Wm. Maver, Jr., M. J. O'Leary, J. D. Underhill, W. S. Ross, Geo. M. Neuman, F. E. McKiernan, Geo. F. Randolph, A. B. Proal, Theo. L. Cuyler, Jr., J. Makenzie, J. C. Watts, A. Duffy, E. A. Coney, E. J. Rankin, R. J. Murphy, R. Fagan and P. Gries.

A vote of thanks was extended to the Western Union Telegraph Company for the use of the steamer "Western Union."

New York Visitors.

Mr. George L. Lang, superintendent of telegraph, Queen and Crescent Route, Lexington, Ky.

Mr. Arthur Cox, of Toronto, Ont., auditor and purchasing agent of the Great Northwestern Telegraph Company.

Mr. W. F. Williams, superintendent of telegraph of the Seaboard Air Line Railway, Portsmouth, Va.

Mr. Charles F. Annett, assistant superintendent of telegraph of the Illinois Central Railroad, Chicago, Ill. Mr. Annett was accompanied by his daughter.

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THE APPLICATION OF STORAGE BATTERIES TO RAILWAY TELEGRAPH SERVICE.*

BY W. E. ATHEARN.

When I received an invitation from Mr. Jacoby to prepare a paper on the subject of Storge Batteries, for railway telegraph service, I did not have before me a copy of the paper that gentleman himself read at your meeting last year and I rashly assented to his proposition.

Had I looked a little more carefully to see what had already been presented to your attention on this subject, I think I should have been a little slower in committing myself to the task set for me. However, nearly every subject connected with the telegraph service has been presented so many times by different writers, that I may be pardoned if, in this paper, I reiterate many truths already known to you.

The importance of uninterrupted telegraph service for the handling of trains almost precludes the trial of any new departures, and what might be termed ultra conservativeness, may, after all, have been the most prudent course to pursue. This, I think, probably accounts for the limited use to which the storage battery has been put, up to the present time, in the railway telegraph service. It has, however, been my good fortune to be connected with the Western Union Telegraph Company, where there are so many wires, and so many battery stations, that the failure of any one of them could be quickly taken care of, by supplying current from other nearby battery centers. One or two copper wires, with their low resistance, serve readily for battery leads for points many miles apart.

In the development of any new invention, there are generally three, or at least two, different classes of people involved. First comes what we might term the pure scientist, who may spend a lifetime in delving out new, or rather, heretofore unknown, properties of matter. This class is followed by the men who, accepting the facts discovered by scientists, set themselves to work to see what practical uses can be made of them. These we term inventors. After them, again, come those, whose task it is to determine what ones, of the numerous inventions at hand, are applicable to their own peculiar needs. To this latter class, I take it, belong the majority of the gentlemen present. I do not mean to infer that you, in yourselves, may not all of you be inventors, or possibly pure scientists; but I take it rather, you have, as a whole, attained to your present position through you special aptness, for what I have called the third class, in the logical chronology of new departures.

Having in mind, then, this view, it will be my endeavor to show, mostly by my own personal experience, in what ways the storage battery may be made useful for your telegraph service.

At the Jersey City terminus of the Central Railroad of New Jersey, in 1894, there were five hundred cells of gravity battery, maintained for locals, and for the railroad wires that did not cross the river to the Western Union main office in New York. This seemed an excellent place for trying, what might be termed, the experiment of substituting storage, for gravity batteries for the railway telegraph service—as passing through that office are more than a hundred Western Union commercial wires—and I assured my friend, Mr. Robert Stewart, at that time superintendent of telegraph for the Central Railroad of New Jersey, that it was definitely understood, that, in case of failure of the proposed storage battery, the Western Union would send him power from their dynamo plant in New York, to operate the railroad wires. With this reserve to fall back on, he readily gave his consent. I am pleased to be able to say, that in the seven years following, they have never had to call on the New York office for help. The railroad company furnished power, for charging these batteries, from their own electric light plant, and gain in return, the use of nearly all the space formerly set aside for a battery room, as the storage cells are small, only about four inches square, and less than a hundred in number.

Their lighting plant, in clear weather, runs only at night, and the power taken, for the storage batteries, is about what would be required for two incandescent lights. There are two distinct sets of batteries for the main lines. One set furnishes current to the telegraph wires for twenty-four hours, and is then put on charge over night, while its companion bank of cells, takes care of the telegraph service during the succeeding twenty-four hours. This makes the work easy for both banks, and would permit the maintenance of the service for four days, even if their electric light plant should fail, and no fresh charge could be put into the cells for that length of time. The locals are also taken care of by the use of four cells of 125 ampere hour capacity. Two cells charge in series and discharge in multiple. One leg of the electric light branch, that furnishes light to the operating room, is looped down, so that all the current passing to those lamps, also passes through the two storage cells in series. This creates a back pressure, dropping the voltage of that particular room from 110 to between 105 and 106 volts. Lamps of the latter voltage are used, when full candle power is expected from them. The reason for using four cells, instead of two, is that the current, in that particular branch of the light service, would not put sufficient charge into one storage cell, to enable it to supply the twenty or thirty four ohm sounders they require in their service.

It would be poor engineering if we had to burn lamps at 110 volts, when we did not need them for light, but simply required some two and a half volts per cell for charging the storage batteries. The first cost of the storage plant, required for the displacement of the 500 cells of gravity battery, was a little under $200. No expense was entailed for the first two years, when a new set of positive plates

* Read before the convention of the Association of Railway Telegraph Superintendents, at Buffalo, N. Y., June 19, 20, 21, 1901.

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was put in, at an expense of less than $100. At the end of six years, a complete set of new cells was furnished, but many of the old cells are still in use where the demands for capacity are lighter.

Letting the saving in battery room space, and the labor of cleaning, offset the cost of the charging current, and it will be seen that the total expense for six years was $300 for storage battery service, whereas it would have cost $3,000 to have maintained the gravity batteries for that length of time, allowing an expense of $1 per year for each gravity cell. I have dwelt somewhat in detail on this particular installation, as it is one of the oldest with which I have been connected. Since that was put in service, I have installed nearly a hundred other plants, and have seen no reason for modifying my views as to the great economy, both as to actual cost, and as to the labor involved in keeping the plants in efficient operation. At first I paid regular and frequent visits to the various installations under my care, but with the development of more perfect bateries, I have found this unnecessary, and I have some thousands of cells in daily use that I have not seen in two years' time. In fact some storage batteries have been put in at remote points, where no lineman is stationed, for the very reason that they will maintain constant service with so little attention. My instructions, when setting up these small plants, is for the operator to reverse his switches once every twenty-four hours, and as often as once in three months, to look at the batteries and add water if needed, to keep the plates covered by the solution.

No small plants, say where there are not over three hundred cells, have any meters, but when setting up the batteries, I calculate the output demanded by the wires they are to feed, and set the charging rate so that it will be sufficient for a week of foggy weather. In large installations it pays to have meters as much less current is taken by the telegraph wires in dry weather, and the charging current can therefore be reduced, and enough saved to eventually pay the cost of the meters.

The fact that one may not have meters to use, even in starting an installation, need not matter, as the batteries are not at all delicate affairs and work very well when one goes by the rule of thumb. Where the charging current is about 110 volts, the bank of batteries should not exceed forty cells. One ordinary fifty volts sixteen C. P. lamp, in series with forty cells of storage battery, will permit a current of 110 volts, to charge the cells at about one-quarter of an ampere rate. When the charge first begins it is a little more than this, but towards the end it is somewhat less, so that to say the rate is one-quarter ampere is a fair average. Another simple rule that works admirably in practice, is to allow one ampere hour of capacity in size of the storage cells, for each single telegraph wire that is to be supplied. This is based on a twenty-four service and has ample allowances for the gradual wearing out of the cells. For example, if one had five wires to battery, he would allow forty milamperes as the ordinary current for each wire. The five wires would take, then, two- tenths of an ampere, or four and eight-tenths amperes in the twenty-four hours. So it shows that a cell, of five ampere hour capacity, would maintain current to lines, even if they were closed all the time. But in practice, busy wires are actually open a little over half the time. So it is apparent, from a theoretical standpoint, that the rule, one wire to each ampere hour of cell capacity, is correct, and what is of still more value, an experience of over five years and with nearly 20,000 storage cells, has demonstrated the truth of this theory.

Another point is that special care should be taken in the construction of the battery stands.

With gravity batteries we have always thought most any old thing would do, so long as it was strong enough to hold up the cells. I started in using the old gravity stands, just as I found them, but before long I began to get complaints that there was a great deal of escape put on the wires, whenever a storage battery was cut in as an intermediate battery. I soon found that wherever a little solution had been spilled, or any leaked out from a cracked jar, the wooden shelf was turned black, and reduced to almost a state of punk. A wooden shelf in such condition is a fairly good conductor in itself.

Build your stands so that the shelves shall be short pieces, say not over four feet long, and carefully insulate each shelf by porcelain knobs. Small knobs, costing half a cent apiece are well suited, and they can be screwed to the cross braces between the uprights of the battery stand.

One more matter I wish to call to your attention. You will observe that the manufacturers of storage batteries lay considerable stress on having chemically pure acid, and distilled water used in preparing the solution for their cells. No doubt this is a help, and it avoids the risk of something being introduced into their cells that may shorten their life. I would not, knowingly, make use of water impregnated with lime, or what we ordinarily term, hard water. When I find a place with water of this nature I use rain water. For acid I find most, if not all, of the ordinary commercial sulphuric acids do very well. Put four quarts of water into an earthen jar, add slowly one quart of acid, stirring it as it mixes, for this mixture develops great heat. Place the jar on wood, otherwise the bottom may crack, if it stands on a cement floor. Let the solution get cold before putting it into the cells. Fill, to cover the lead plates, and then add from an eighth to a quarter or an inch of paraffine oil, which will float on top of the solution and prevent evaporation. The oil also serves other purposes, as it prevents the cells from spitting or bubbling when over-charged. This spitting out of the solution by the escaping gas bubbles would wet the battery stands, and would make necessary frequent testing of the solution by hydrometer, to see that it contained the proper amount of acid. The oil checks the bubbles of gas, and they simply make a froth on the cell. The density of the solution is thus preserved. I have used the same solution for years without having to add anything but water,

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and still its density stands at twenty-five degrees Beaumé.

The paper on this subject, presented to you last year, is replete with suggestions as to how storage batteries may be set up to confirm to the various sources of charging energy, and I will add but one more point to my remarks at this time.

Always bear in mind that the insulation of the cells, and the style of wiring adopted, must be as carefully attended to as for any regular electric light work. Be sure, also, that a fuse is put in with each bank, or group of cells, for while they look harmless, they have an enormous amount of energy stored up in themselves, and a short circuit would mean the almost instantaneous melting of the wires, unless there was a fuse to protect them.

PROF. HENRY'S MAGNET APPARATUS.

BY GEORGE C. MAYNARD.

Mr. Geo. C. Maynard, of Washington, D. C., recently described in the Electrical Review of New York, the electrical collections in the Smithsonian Institution, and the National Museum, and the following interesting extract is taken from his writings:

The chief director of the Museum, who is known as the Executive Curator, is Dr. F. W. True. The exhibits are arranged in three departments, each under the charge of a head curator. Dr. George P. Merrill is the chief officer of the Department of Geology; Dr. F. W. True, of the Department of Biology, and Dr. William H. Holmes, of the Department of Anthropolgy. One of the divisions of the Department of Anthropolgy is that of Mechanical Technology, of which Mr. J. E. Watkins is the curator. This division includes the Section of Electricity, in which much interest has been manifested by persons engaged in the various electrical industries whose co-operation has resulted in largely increasing the collections. The knowledge that there is a safe repository for valuable historical relics in an institution controlled by the government, in which every citizen has a common interest and may properly feel a sense of ownership, has given great satisfaction to possessors of interesting objects which they desired to place beyond the chance of destruction and where they could be examined and studied by the public.

An account of the objects in the Museum illustrating electrical development should, naturally, begin with a reference to those connected with the work of Professor Henry. Unfortunately, much of his experimental apparatus has been destroyed or scattered, but a very interesting collection has been preserved. This includes three pieces of apparatus which illustrate his most important discoveries.

This apparatus was devised by Henry somewhere about 1830, while he was at Albany. The original apparatus has not been preserved and there appears to be no record of the experiments made at the time it was used. In 1857 Henry made the following statement: "I arranged around one of the upper rooms in the Albany Academy a wire of more than a mile in length, through which I was able to make signals by sounding a bell. The mechanical arrangement for effecting this object was simply a steel bar, permanently magnetized, of about 10 inches in length, supported on a pivot, and placed with its north end between the two ends of a horse-shoe magnet. When the latter was excited by a current, the end of the bar thus placed was attracted by one arm of the horse shoe and repelled by the other, and was thus caused to move in a horizontal plane and its further extremity to strike a bell suitably adjusted. The fact that Henry did exhibit the apparatus he describes some time prior to 1833, is fully substantiated by several persons who witnessed the experiments.

This machine was made by Professor Henry about 1831 for Professor Silliman, of Yale college. It is the only one of several similar pieces of apparatus now in existence. Henry directed and watched the blacksmith who forged the iron, and wound the wire with his own hands. The apparatus was carefully preserved at Yale College for about 60 years and was then transferred to the National Museum, where it is regarded as a most interesting and valuable relic. In the American Journal of Science and Arts, 1831, Volume 20, page 201, the following description written by Henry is published: "The magnet weighs 59½ pounds, avoirdupois (exclusive of the wire wound upon it), and was formed from a bar of Swede's iron, three inches square and thirty inches long. Before bending the bar into the shape of a horseshoe, it was flattened on the edges, so as to form an octagonal prism, having a perimeter of 10¾ inches. The armature, or lifter, is a piece of iron from the same bar, not flattened on the edges; it is nearly three inches square, nine and one-half inches long, and weighs 23 pounds. . . . The magnet is wound with twenty-six strands of copper bell wire, covered with cotton thread, thirty-one feet long; about 18 inches of the ends are left projecting, so that only 28 feet actually surround the iron; the aggregate length of the coils is therefore 728 feet." This magnet is suspended in a wooden frame six and one-half feet high and three and one-half feet wide, standing on a base seven and one-half feet long and sixteen inches wide. Henry used a single cell of battery "formed of concentric copper cylinders with cylinders of zinc plates interposed and so united as to form but one galvanic pair. It was twelve inches high and about five inches in diameter, and the plate, measuring both surfaces, presented four and seven-ninths square feet to the action of the liquid." This is a type of battery cell figured in Sturgeon's account of his scientific researches. The lifting power of this magnet was tested by loading the wooden platform suspended from the armature with heavy weights. A set of seven cast-iron weights, weighing from 45 to 100 pounds each, accompany the machine, and it was the custom to add to this weight by having a number of men stand on the platform which projects outside of the frame for this purpose. The iron

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lever, nine and one-half feet long, was used to raise the platform and hold it until the battery was connected. President Noah Porter, of Yale College, referring to this apparatus, says: "I well remember the excitement which this discovery occasioned when the first experiment was tried at Yale College, in the presence of a few spectators who casually met at the call of Professor Silliman, who was glowing with animation and delight. The ponderous platform was loaded with pig iron and other heavy weights, with a few additions of living freight. Among the latter was the speaker." The magnet was capable of sustaining a weight of between 2,000 and 3,000 pounds.

The original apparatus used by Henry is in the museum collections. It consists of a steel bar magnet, one inch square and twenty inches long, rigidly held in a horizontal position in a wooden frame, with a straight solid core electromagnet, ten and one-half inches long, hung on central trunnions above and parallel with the permanent magnet. The wire coiled around the core has a pair of terminals at each end arranged so that when either end of the magnet is depressed the wires will dip into the mercury cup connections of a single cell of battery. Henry's account of the apparatus and of the experiments tried with it is printed in the American Journal of Science and Arts, 1891, Volume 20, page 340. The paper is entitled "On a Reciprocating Motion Produced by Magnetic Attraction and Repulsion."

The Story of Edison and the Inventors' Institute.

Daily newspapers have the news that Thomas A. Edison is planning to establish an institute in Paris for the benefit of impecunious inventors. Why Paris, is not stated. However, Mr. Gourand, the European agent for Mr. Edison, is said to be authority for the statement. The institute is to be in active operation within a year and a half, according to the story. Mr. Edison will donate all the machinery, a completed, fitted laboratory and a reference library. There will be no restrictions as to nationality, race or creed. It is stated that every deserving man who is an inventor, or who is struggling with some invention his lack of means prevents him from completing, will be welcomed at the institute and aided. This, of course, means an undertaking of great magnitude. It is expected, moreover, that the institute will have branches for all the various sciences, one department being entirely devoted to electricity, another to chemistry, etc.

Coming Conventions.

The International Association of Municipal Electricians, at Niagara Falls, N. Y., September 2, 3, 4.

The Old Time Telegraphers' Association and the United States Military Telegraph Corps (jointly), at Montreal, Quebec, September 11, 12, 13.

The Chicago pork packer who has decided to give all his telegraph operators a month's vacation with full pay has not been corrupted by his association with hogs.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

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"POCKET EDITION OF DIAGRAMS AND HANDBOOK FOR TELEGRAPH ENGINEERS," by Willis H. Jones, 115 pages. 54 full-page diagrams. This book places before the telegrapher a pocket edition of diagrams designed to take the place of the incomplete drawings which nearly every chief operator, lineman and student carries; bound in flexible imitation leather; price, $1.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco; price, $7.

"TALES OF THE SIERRAS," by J. W. Hayes, 136 pages, illustrated. This volume, full of laughable incident, presents a collection of original and well told telegraph sketches, partaking in character largely of the former wild life of the frontier. The fun in the book, which never descends to vulgarity, is accentuated by droll illustrations by John L. Cassidy; bound in cloth, $1.10.

Any of the above publications will be sent on receipt of price to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

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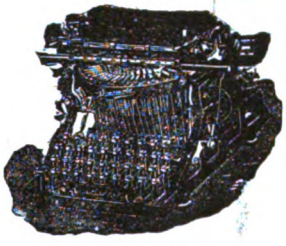
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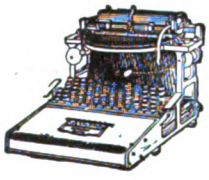


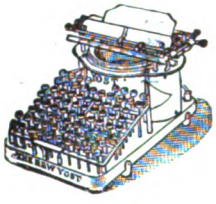
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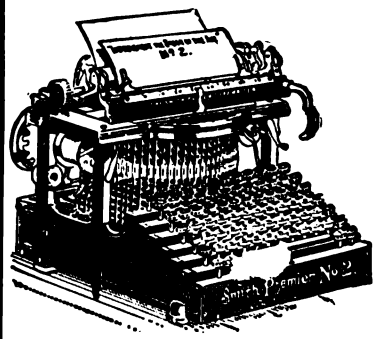
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NEW YORK, July 1, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

Governing Promotions.

Mr. A. R. Swift, of Chicago, superintendent of telegraph of the Chicago, Rock Island and Pacific Railroad, in a paper read before the late meeting of the Railway Telegraph Superintendents at Buffalo, on "The Inefficiency of the Ordinary Operator," and which is printed in full in another column of this issue, gives expression to some ideas which are well worth the careful scrutiny and mature consideration by both operators and officials, whether in railroad or commercial service. Fundamental truths of the character there enunciated are the same in every department of telegraphic and all business life, and apply with equal force to all concerned. They are strictly in line with those this journal has so often sought to impress upon its readers.

The situation does not always place the burden of proof and of entire responsibility of shortcoming upon the shoulders of the operator, for it is a broad and many sided question of equity frequently at issue and demanding settlement between the telegraph official and the telegraph operator. And with the latter we are in bonds of close fellowship and sympathy. For from within the telegraphic ranks we retain vivid recollections of personal experience; knowledge born of contact with the atmosphere of dots and dashes bringing firmly and clear to mind the needs, the hopes, the aspirations and the disappointments of the fraternity; the friendships there begun and still cherished—all calculated to place us in familiar and, we believe, discriminating touch with the great body of telegraph operators as a potent and living factor of to-day.

Yet our sympathies, however strong, should not be permitted to close our eyes or shadow our understanding to the faults that too frequently possess the operator, and because of which hold him in bondage to positions away from and above which he should aspire and might attain.

We refer more particularly to the apparent lack of interest shown by many in technical study, especially among the younger men. It is the happy-go-lucky spirit, the indifference with which so many look out upon life, even if not fully contented with the present, yet without force of character sufficient to enable them to take hold earnestly upon the great confronting problems of their calling. In these days when electrical science is making such great progress, causing many innovations into old methods; when a technical knowledge of this great force is so requisite to the practical requirements of the modern telegrapher, it is amazing that so many in the profession, clinging to the avocation like last year's dead leaves to the living branch, yet making no effort to master its urgent demands, continually made apparent and thrust upon their notice, and resting content with the bare understanding long ago acquired, of being able to send and receive, merely.

Sometimes it is pleaded in excuse for inadequate education in these particulars that an operator has no chance of promotion, hence "What's the use" to prepare for something that will never be realized? This is the plea of the lazy man. To master one's profession is to put oneself in the line of promotion. It is more than that, it is to command promotion. The really competent man rarely has his abilities overlooked. He rather is the one who is being sought. His study and preparation, in order to fit him for better work, will be found to have trained his mind and elevated his moral force to the point of favorable recognition by his official superiors. There is a place always waiting for good and capable men. The reward may not come when or as expected. It may not be necessarily always in the telegraphic field that operators shall find the advancement they believe to be their just due, although from the telegraphic force itself the companies must primarily look for its future officials; but if not, then in other and analogous callings, where the pecuniary rewards may be even higher. No lasting promotion will come without fitness. Our earnest advice, then, is for operators to take every advantage their present positions and surroundings permit to better fit themselves to successfully wage the battle of life which confronts every one of us.

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Why Great Britain Loses Money On Nationalized Telegraph Lines.

BY JOHN FITZPATRICK, OF CHICAGO.

I would like to correct any false impressions which may have been formed by persons who read George A. Schilling's recent article on "England's Success in Running her Own Telegraph System." He states that W. S. Harwood in the Century Magazine of April, 1900, said that England loses from $1,000,000 to $1,500,000 annually because of low press rates, and throughout the article Mr. Schilling lays the responsibility for the loss principally upon the newspapers, while, as it is within the power of the Government to rectify any existing wrong, the Government itself is to blame. In the year ending March 31, 1898, the deficit was over $2,933,000; the following year over $2,520,000; in the year ending March 31, 1900, over $2,718,000, and during the last fiscal year $3,500,000.

If, say, $1,500,000 of last year's shortage is chargeable to the newspapers, as claimed, what about the other $2,000,000? Who makes good the deficit? The taxpayers throughout the kingdom, directly or indirectly. Over ninety per cent of those taxed on this account rarely if ever use the telegraph; in other words, the vast number who do not use the telegraph at all must help pay for messages sent by bankers, stock brokers, etc., and such an assessment is manifestly unjust. In the United States, on the contrary, the telegraph companies pay taxes amounting to about $1,500,000 annually, consequently the taxes of citizens all over the country are reduced to that extent.

Sir Michael Hicks-Beach, chancellor of the exchequer, stated the deficit last year was "due to public eagerness for more rapid communication than the revenues warranted, and that unprofitable extensions must be discouraged."

Mr. Schilling quotes a paragraph from Mr. Harwood's comments, in which, after lauding the cheap and efficient British service, he states it is "accomplished with no increase in taxation, the business being not only self-supporting, but so far profitable as to insure it against the need of parliamentary appropriations." Mr. Schilling says that the public profits by Government ownership. How can this be when the official annual reports of the British postmaster general show that there has been a large deficit every year since the Government purchased the lines in 1869?

The inference from Mr. Schilling's article is that the telegraph service of Great Britain is first class, while that of this country is very poor. On the contrary, it is a notorious fact that the service in the British Isles is abominable. The New York Sun's London correspondent in a special dated Nov. 17, 1900, referring to the poor telegraph service over there, states that in 1899 the Telegraph Chronicle (the organ of the telegraphers of the United Kingdom) by some means "obtained and published a confidential report of the secret commission appointed in 1895 for the purpose of ascertaining how much money could be saved in the administration of telegraph. The commission deliberately reported in favor of economy before efficiency. Practical men agree that what is imperatively required to extricate the Government telegraph service from the slough into which it has been allowed to fall is the appointment of a trained telegrapher as 'telegraph master general,' with full powers of control and administration and subject only to the postmaster general or parliament. Failing that, the only hope of salvation would be a reversion to the system of private competing telegraph corporations, which parliament arbitrarily abolished thirty years ago."

Eighty-five per cent of the telegrams are on commercial and speculative business, only 5 per cent being messages of a social and family nature, and less than 2 per cent of the population ever uses the telegraph in a single year. The question of rates is of small consideration to the banker or stock broker as compared with quick and accurate service, and a few cents are as nothing to five minutes' time.

Where is there a telegraph service which excels or equals that performed between the Boards of Trade of this country, where messages are daily transmitted, orders executed, replies received and delivered, all in one minute or less time?

In England people using the telegraph have no redress beyond the amount of tolls paid in case of damage or loss caused by errors in or delays to telegrams, whereas in this country, telegraph patrons have proper recourse through the courts.

Mr. Schilling adds that "over 13,000 miles of wire were added to the (British) service in 1899, and there are now more than 11,000 public telegraph offices in the kingdom. The highest praise is given to the character of the service rendered, and the operators employed are of such ability that but eight have been discharged during the past fifteen years."

British telegraphers, before entering the Government's employ, undergo a civil service examination, and if they pass they cannot be discharged unless they commit some heinous offense. When once in the Government's employ they are reasonably sure of their positions until they die or are too old to work, therefore there is not the compulsory incentive for careful work that exists in this country, where operators, in order to hold their positions, must do first class work.

There are also better chances for promotion here. Seldom does an English messenger boy become even an ordinary operator, while here we have numerous instances where messengers have attained the positions of presidents of railroad or telegraph companies.

Regardless of the kind of service it performs, the Government is sure of all the business, but in the United States, where competition is so sharp, each telegraph company must do its utmost to render the best possible service, otherwise the business goes to its competitors.

During the past year the telegraph facilities in the United States were increased by 47,905 miles of wire, making a total of about 1,159,618 miles

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now in operation, and nearly 45,000 points can be reached by telegraph. Here there is a telegraph office in every railroad station. In the United Kingdom there are hundreds of post offices in which telegrams are not handled.

In London there is one sub-office for every 7,000 people, whereas in Chicago, for instance, there is one branch office for every 4,000 inhabitants.

We pay a higher rate for material, construction, maintenance, and operators' salaries are higher than in Great Britain and distances being greater the wires are more susceptible to interruption. A wire running from New York to San Francisco passes through various temperatures, as in the Eastern states the weather may be fair, in the Mississippi Valley there may be sleet, in the Rocky Mountains snow, and in California summer heat, all simultaneously, which necessarily makes operation more expensive.

The lines in most parts of this country run through sparsely settled territory, whereas those in Great Britain pass through a compact, densely populated country.

The average tolls per message handled over the Western Union Telegraph Company's lines for the year ending June 30, 1900, was 30.8 cents; the average cost per message handled was 25.1 cents. It is only natural then that the charges here should be higher than in England, where the rate is sixpence (12 cents) for a minimum of twelve words and a half-penny (1 cent) for each additional word, the words in address and signature being counted and charged for.

In many cases our rate is as low and sometimes lower than in Great Britain. For instance, the following message may be sent from Chicago to Buffalo (535 miles, or almost as great distance as that between any two points in the Kingdom) for twenty-five cents:

To J. H. Brown, 2,943 Fifth avenue, Buffalo, N. Y. Goods go to-day via Wabash. Exhibit soon as they arrive. JOHN SMITH & Co.

A message of similar length (twenty-five words, including address and signature) would cost 25 cents in Great Britain. The area covered by our 25-cent rate is very much larger than that of the United Kingdom.

The rate from New York to San Francisco (nearly 5,000 miles) is $1 for ten body words, with no charge for address and signature. To send a telegram from any point in England a similar distance on the continent would cost three or four dollars, probably more.

When events of public interest come up here the telegraph companies, on a moment's notice, without figuring whether or not it will pay, send linemen with material and instruments to make wire connections and skilled operators to transmit any matter that may be filed, while our friends on the other side of the Atlantic, on account of the formalities through which they have to go, are unable to cover many important events.

It is insinuated that telegrams intrusted to companies in this country are not kept secret. This is wrong. There is a law here making it a criminal offense for any official or employee of a telegraph company to divulge or make improper use of the contents of a message. The fact is that the telegraph companies here have spent thousands of dollars in defending the privacy of telegrams before courts, legislative committees and other tribunals that assumed to send dragnet subpœnas to telegraph offices to find evidence. The courts have ruled that where messages are properly described by their date, address and signature they must be produced, and the telegraph companies are compelled to comply with this ruling.

Outside of London, and possibly one or two of the other larger offices, the British telegraph business is under the supervision of the postmaster, who, although probably very competent in the post office work proper, usually has had no training whatever in the telegraph department. On this account the real telegraphers under him have a continuous disgruntled feeling which prevents hearty co-operation with their superior. This state of affairs has a bad effect upon the general telegraph service.

I believe that England's failure to successfully operate her own telegraph system to be due, first, to the charges being too low; secondly, to the handsome salaries paid the higher officials, who look wise and dignified but perform little or no labor and know little or nothing about practical telegraphy; and, thirdly, to an antiquated telegraph system.

New Pacific Cable System.

Caroline Islands, which were purchased by Germany from Spain after the United States had declined to take them, and which form natural landing places half-way across the Pacific, will soon be connected telegraphically with the rest of the world. Germany and the Netherlands are planning to lay a new cable to connect with the Dutch East Indies and make them independent of the British cable system. It is proposed to lay the main line to Shanghai, with branch cables thence north to Kiao-Chau, east to Japan and America, and south to the Indian Archipelago. The southern line will have its first station on the Bismarck and Caroline Islands, and thence will go west in a roundabout way through the Dutch dominions to the North Natuna Islands, without touching any of the British possessions. The North Natuna Islands will form the terminus of the line. The Netherlands will construct the following cables: First, from Natuna Islands to Pontinac, Billiton, Banka, and Palembang, in connection with the land line, which will traverse the country by way of Kalianda, through the Sunday Straits to Batavia. Second, from Palembang direct to Batavia. Third, from Macassar to Ambon, where Germany will continue the cable to German New Guinea to connect with the main line.

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INEFFICIENCY OF THE ORDINARY OPERATOR.*

BY A. R. SWIFT.

Upon the receipt of a letter from your Chairman of Topics asking for a brief suggestion upon this subject, my first thought was to inquire in what respect does this inefficiency consist, for certainly no operator would be employed or retained in service who was inefficient in all his duties. Many good all-around men are deficient in some parts of their work, while they excel in others. So many and so varied are the duties required of the ordinary operator that should he fail in none of them, he certainly would be regarded as a curiosity and should be preserved in a glass case. No man can be perfect; only the angels are absolutely so. Very much depends upon the teacher or instructor who imparts to the operator his fundamental knowledge of telegraphy and the other requirements accompanying it necessary to the making of an efficient operator, and which tend to make him trustworthy. But, however efficient the instructor and painstaking his efforts, he cannot make bricks without clay, and he cannot transform the untutored applicant into even a fair operator, without some material requisite for such an evolution. There must be some ability, some natural talent. Nor can his best efforts produce a reliable and trustworthy man, without there has been the early training in which only the parent can lay the foundation of future character. It requires, too, an appreciation of the importance of carefulness, determination, as also patience, perseverance and the cultivation of good habits to transform the crude embryo into the first-class operator.

One obstacle to perfection lies in the fact that as soon as the operator has reached that stage of his development which finds him able to take a message or handle a train order in an ordinary manner, he is rushed away to fill a pressing vacancy before his education is completed, or he is qualified for his vocation, and from that time he is his own teacher and his work is thereafter accomplished in accordance with his own peculiar views of how it should be done, and so become, as time lapses, so deep rooted in his mind, that future attempts to instruct him in a line opposed to that which he has habituated himself and the instruction would be unavailing as, in his own estimation, he knows more than his instructor and his own way he considers the best. He has formed the habits that have caused countless failures.

To reach that efficiency worthy of promotion to higher fields, nature must have provided him with a bright active brain, and he must with it, possess an ambition which will inspire him to work for that perfection which will bring to him a better future than that of a mere operator, plodding along from day to day, year in and year out, without that inspiriting hope that by his own exertions he may reach, in time, the very top round of the ladder, as many others have done. Nine-tenths of the best general managers of our most extensive railroads started as telegraph operators. As such examples to the youthful operator, I may mention such names as Marvin Hughitt, of the Northwestern, and A. J. Earling, of the St. Paul—in short most of the presidents and general managers of our greatest railway systems, commenced their practical educations at the telegraphic key.

Indifference, laziness, intemperance, lack of ambition, are the obstacles preventing many in the ranks from advancing to commanding positions, in this, as in all other professions and vocations. The meager salaries paid at the start do not, as a general thing, serve as an inducement to many to leave other fields, who would doubtless enter this service and become bright stars in this profession.

Of course there may be exceptions found to the rule of advancement for merit. An employee may be injured in such a manner as to incapacitate him from pursuing the duties of his employment. He urges his claim against the company and in the negotiations for a settlement it is suggested by the claim agent that he learn telegraphy and a place would be given him with the company, which is done to the detriment of those already in the service. Partiality arising from friendship, relationship or individual liking, also sometimes bar the advancement of the worthy operator. To see others less qualified advanced over him, when he feels himself entitled to promotion, through the enmity toward him by a trainmaster or superintendent, or the friendship to another, is a discouraging factor which tends to destroy ambition, and transform a bright mind into a mere machine, to the injury of both the operator and the service.

We, ourselves, are many times to be blamed for not advancing men who fill their places to perfection, and are qualified to advance, for fear we may not find as suitable an operator for the place which would be thus vacated.

As to the remedy for the inefficient operator I do not feel competent to do more than suggest what my experience has shown to be the best rule, that is to employ the best men we can, treat them well, overlook their smaller errors and teach them to strive for advancement, with the assurance that they will obtain it if deserving; not to allow our chief operators to change men too often and for trivial reasons, but to be patient and to help the new men to know and appreciate the right way and the wrong way of performing their duties. If necessary to relieve a man for the reason of discipline, do so, but if his case will admit of it, when he is sufficiently punished, reinstate him, then if there be good in him, it will be shown.

A new submarine cable between England and Germany was laid on May 31 and June 1, the shore end at Bacton, England, having been completed on the former date. The work was carried out by the German cable ship, Von Podbielski.

No up-to-date telegrapher can afford to be without TELEGRAPH AGE. Send for a sample copy.

* Read before the Convention of the Association of Railway Telegraph Superintendents at Buffalo, N. Y., June 19, 20, 21, 1901.

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The Convention of the Railway Telegraph Superintendents.

The twentieth annual convention of the Association of Railway Telegraph Superintendents held at Buffalo, N. Y., on Wednesday, Thursday and Friday, June 19, 20 and 21, was, every way considered, a memorable affair. The attendance, which has steadily grown from year to year, surpassed all previous records, and brought together a highly representative and intelligent body of men, and a really great convention was the result. Much interest was taken and an earnestness of purpose displayed in the conduct of the proceedings. Doubtless the Pan-American Exposition, with its beauty and wealth of display, acted also as a drawing card, for why not "kill two birds with one stone" under such an exceptional opportunity? Nevertheless full credit as a distinctive attraction must fairly be awarded to the intrinsic value and interesting features inherent in the purposes of the convention itself. Enthusiasm for, and worthily growing pride in their association was notably manifest among delegates on all sides. And perhaps especially so, because this meeting marked the twentieth anniversary of its organization. It was out of its teens, so to speak, vigorous and alert, and its mature years places it well in the van of fraternity associations.

Headquarters were established at Statler's Pan-American Hotel, located conveniently near the main entrance to the Exposition grounds, and the meetings were held in a large room within the hotel structure. These sessions were confined to the morning hours, thus leaving the members free during the rest of the day to go wherever they liked. A large amount of important business was dispatched. A number of excellent papers were read, all appropriately bearing on the improvement of the railway telegraph service, and the discussions which followed were at all times animated, thoughtful and well sustained.

The meeting was called to order on Wednesday morning, June 19, by the president, Mr. W. F. Williams, of Portsmouth, Va., superintendent of the Seaboard Air Line, who introduced Mr. H. W. Pope, of Buffalo, N. Y., the acting general manager of the Bell Telephone Company, of that city. Mr. Pope welcomed the delegates to Buffalo and stated that his company had instructed him to extend an invitation to them to participate in a trip to Niagara Falls, and other features of entertainment, which were accepted.

Mr. Charles Selden, of Baltimore, Md., responded to the address of welcome on behalf of the association.

Mr. J. B. Donner, superintendent of telegraph of the Southern Pacific Company, San Francisco, Cal., and Mr. Geo. F. Weidman, superintendent of telegraph of the Pere Marquette Railroad, Detroit, Mich., were elected members of the association.

The report of the treasurer showed that the association was in a prosperous condition.

The next business acted upon was the selection of Boston, Mass., as the place for next year's meeting. It will be remembered that that point was originally selected as this year's convention city.

The election of officers which followed resulted in the selection of Vice-President C. F. Annett, assistant superintendent of telegraph of the Illinois Central Railroad Co., Chicago, Ill., as president; Mr. F. P. Valentine, superintendent of telephone of the New York, New Haven & Hartford Railroad Co., Boston, Mass., as vice-president, and Mr. P. W. Drew, of the Wisconsin Central Railroad Co., Milwaukee, Wis., the old wheel horse of the association, was re-elected secretary and treasurer, the nineteenth consecutive time he has been elected to that position. A letter from Mr. Thomas A. Edison, of Orange, N. J., regretting his inability to be present, was read, as were also letters from other prominent telegraph and railroad officials.

Invitations were read inviting the members of the association to inspect the exhibits of Mr. P. B. Delany, of South Orange, N. J., who showed his rapid automatic telegraph system in actual operation in the Electricity Building; of J. H. Bunnell & Co., of New York, who had a full line of telegraph instruments; of the Ericsson Telephone Company, of New York; of the Railroad Supply Co., of Chicago, represented by Mr. E. W. Vogel, of Chicago; of the Bunnell Telegraphic and Electrical Co., of New York, and of the Bell Telephone Co. An opportunity was then given to Messrs. J. H. Bunnell & Co. to amuse the members of the association for a few minutes by rehearsing on telegraph instruments appropriately arranged around the hall for the purpose, what usually happened on the press circuit running out of New York, and known as "Number Four East," when the regular "Sending" operator was absent for the evening.

The next order of business was the reading of papers, and the first one to occupy the attention of the members was that prepared by Mr. Walter P. Phillips, of Bridgeport, Conn., entitled, "Rapid Telegraphy." This paper mentioned what had been accomplished by the Wheatstone and other rapid systems of telegraphy, some of which he praised highly. He then went on to explain the use that could be made of the Phillips-Morse Automatic Telegraph by the railway superintendents.

Mr. Charles Selden, of Baltimore, Md., then read an interesting paper on "The Voltaplex," written by the inventor, Mr. H. S. Bartholomew, chief operator of the Western Union and the Baltimore & Ohio telegraph offices, of Newark, O.

Mr. W. E. Athearn, of the electrical engineer's office, of the Western Union Telegraph Co., New York, read a paper on the application of storage batteries to railway telegraph service. It was replete with valuable information and statistics bearing on the efficiency, cost and reliability of storage batteries, and is published in full elsewhere in this issue.

Mr. C. S. Rhoads, of Indianapolis, Ind., superintendent of telegraph of the Big Four Railroad, read a paper on cipher code for general railroad

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telegraphing, and after it was exhaustively discussed a committee was appointed to further investigate this subject and make suitable recommendations at the next annual meeting of the association. The committee named consists of Messrs. C. S. Rhoads, of Indianapolis, Ind.; C. M. Lewis, of Reading, Pa., and J. H. Jacoby, of South Bethlehem, Pa., and it will endeavor to formulate a cipher code that will meet the approval of the American Railway Association, the idea being to prepare a flexible, yet simple code, looking to the reduction of the amount of unnecessary telegraphing now transacted on railroad lines.

Mr. A. R. Swift, of Chicago, Ill., superintendent of telegraph of the Chicago, Rock Island & Pacific Railroad, read a paper on the inefficiency of the ordinary operator, which gave wholesome truth that ought to be heeded by all employers of telegraph help.

When the convention re-assembled on Thursday morning, June 20, Mr. W. E. Athearn, of New York, was elected an honorary member, after which Mr. Thomas D. Lockwood, electrical engineer of the American Bell Telephone Co., of Boston, Mass., read his paper on the "Importance in Telegraphy of Apparent Little Things." This document proved to contain many valuable suggestions appertaining to the telegraph service, and its discussion was taken part in by almost every member present.

Mr. F. P. Valentine, superintendent of telephone of the New York, New Haven & Hartford Railroad Co., Boston, Mass., read a paper on "Railroading by Telephone." This paper discussed the progress and development of the telephone in the railroad service during the past few years. He stated that this useful device has become indispensable in all departments of the railroad service, and that every trunk line appreciated its great value. The convention adjourned at noon to enable those in attendance to accept the invitation of the Bell Telephone Co., extended through its acting general manager, Mr. H. W. Pope, to visit Niagara Falls, which trip was greatly enjoyed by all who participated.

On Friday, June 21, the convention was called to order at 9.30 A. M. A paper on the usefulness of the telephone in handling trains at terminals was read by Mr. G. N. Clark, who is superintendent of the Illinois Central Railroad at Omaha, Neb., was then read. He gave a very explicit illustration of this new method of moving trains by telephone at terminal points, and furnished samples of the various blank forms which are used for this purpose.

Mr. H. W. Pope, of Buffalo, N. Y., addressed the convention at some length on the advisability of the railroads making further use of the telephone in the operation of the various departments.

Mr. Wm. Maver, Jr., electrical engineer, of New York, read some notes on the subject of underground cables, giving his opinion and advice as to the best insulation for the various conditions met with in underground work.

Dr. G. A. Cardwell, of New York, the well-known telegraph inventor, was introduced and invited to explain his typo-telegraph system which is now in successful operation experimentally on the Long Isand Railroad, at Long Island City, N. Y.

President Annett appointed Messrs. F. P. Valentine, E. A. Smith, S. A. D. Forristall, of Boston; F. L. Blendinger, of New York, and M. Magiff, of St. Albans, Vt.. as the Committee of Arrangements, and E. A. Chenery, of St. Louis, Mo.; A. B. Taylor, of New York, and H. T. Simpson, of Richmond, Va., as the Committee on Topics, for next year's meeting.

The convention then adjourned to meet at Boston, Mass., June 18, 1902.

Among those present were:

Reading, Pa.—C. M. Lewis.

New York—Wm. Maver, Jr., and wife, W. E. McLaughlin and wife, Thomas E. Fleming, A. P. Eckert, W. S. Eckert, E. C. Lunt and wife, L. B. Foley and wife, Wendell Baker, P. W. Miller, F. H. Bethel, W. E. Athearn, E. P. Griffith, H. S. Young, Jr., and wife, W. S. Logue, wife and son; J. F. Hemenway, John J. Ghegan and wife, T. R. Taltavall, Mrs. J. H.Bunnell and daughter, Jesse H. Bunnell, A. B. Taylor, L. S. Wells, Dr. G. A. Cardwell, J. B. Taltavall and wife, F. L. Blendinger, W. E. Gilmore.

So. Bethlehem, Pa.—J. H. Jacoby and wife.

Richmond, Va.—H. T. Simpson, Mrs. M. B. Leonard.

Jackson, Tenn.—Kenneth McKenzie.

Baltimore, Md.—Chas. Selden, wife and daughter.

Chicago, Ill.—A. R. Swift and wife, C. F. Annett and daughter, S. C. Mason and wife, C. H. Bristol and wife, W. W. Ryder, W. J. Holton and wife, E. W. Vogel and wife, Geo. M. Dugan.

Decatur, Ill—G. C. Kinsman, wife and daughter.

Lexington, Ky.—G. L. Lang.

St. Louis, Mo.—Mr. E. A. Chenery and wife, Geo. Hannauer and wife.

Seymour, Ind.—T. S. Blish.

Buffalo, N. Y.—H. W. Pope and wife.

Portsmouth, Va.—W. F. Williams and wife.

Indianapolis, Ind.—C. S. Rhoads and wife.

Sedalia, Mo.—S. K. Bullard and wife.

Washington, D. C.—C. A. Darlton, wife and daughter.

Toledo, O.—W. H. Lovekin and wife.

Boston, Mass.—T. D. Lockwood, F. P. Valentine.

Milwaukee, Wis.—P. W. Drew and wife.

NOTES OF THE CONVENTION.

Some beautiful and useful souvenirs were distributed at the convention by various manufacturing concerns.

The Safety Insulated Wire and Cable Co., of New York, through Mr. A. P. Eckert, presented some memorandum books.

Messrs. J. H. Bunnell & Co., of New York, represented by Messrs. W. S. McLaughlin and J. J. Ghegan, bestowed celluloid pocket tablets. This firm also distributed some very pretty silk

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handkerchiefs of various colors and embroidered with views of the Pan-American Exposition.

The Kellogg Switchboard and Supply Co., of Chicago, through Mr. Paul W. Bossert, and the Webb C. Hall Co., watch manufacturers, of Cleveland, O., distributed pocketbooks.

The Bunnell Telegraph and Electrical Co., of New York, through its representative, Mr. H. S. Young, Jr., gave away silver pocket match boxes.

The Railroad Supply Co., of Chicago, Ill., was represented by Mr. Eugene W. Vogel, signal and electrical engineer. A handsome souvenir in the shape of a book of short railroad stories entitled, "The Railroad," was presented to all members present. Mr. Vogel stated that he would gladly send a copy to those not present upon their request. The signal and electrical department of this company handle all kinds of electric signals for railroads, and the company has lately acquired control of several other crossing signal companies, and manufactures all the various signals for these as well as "The Chicago Signals."

Messrs. J. H. Bunnell & Co., of 20 Park place, New York, exhibited a full line of telegraph apparatus, and Messrs. J. J. Ghegan and W. S. McLaughlin explained the merits of their goods and distributed interesting literature regarding the same.

Mr. W. S. Logue, of Chicago, represented the Edison Phonoplex, which system is in extensive use on various railroads.

The Bunnell Telegraphic and Electrical Co., of 110-116 Beekman street, New York, which was represented by Mr. H. S. Young, Jr., and Mr. Jesse H. Bunnell, of that company, showed samples of telegraph instruments and call boxes.

Mr. J. F. Hemenway, of the Ericsson Telephone Co., of New York, distributed Garcia cigars among the members of the convention.

Mr. H. W. Pope, the general manager of the Bell Telephone Co., Buffalo, N. Y., received a vote of thanks of the association for the entertainment and courtesies given to the members by his company.

The Independent Telephone Association was represented by Mr. W. S. Eckert, of the Knickerbocker Telephone and Telegraph Co., of New York.

Wireless Telegraphy on Shipboard.

The Marconi system of wireless telegraphy received a thorough test on board the Cunarder Lucania at the beginning of the voyage which ended at New York, June 22. The test would have been continued as the vessel approached New York in the fog had the aerial wire aboard the giant Kaiser Wilhelm der Grosse, then in port, been in position.

The Marconi test on board the Lucania began the moment she started to leave the Mersey on June 15. John Pletts was the operator in charge of the instrument for Signor Marconi. Many vessels and lighthouses along the English and Irish coasts were communicated with for twenty-four hours after the Lucania left Liverpool.

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CHICAGO, ILL.

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A Brave Telegrapher Saves a Train.

An exciting experience is related as happening recently to a telegraph operator, Lawrence Hannan, and his friend, Thomas Horan, in the Big Mountain signal station, near Shamokin, Pa., on the Philadelphia and Reading Railroad.

Two well-dressed strangers entered the office, and while waiting for a train, as they stated, began talking with the men, and upon request of Hannan, supplied them with tobacco. This had a bad taste and the men spat it out. The strangers went to the water tank, and coming back handed them a cup of water to rinse their mouths. Horan became unconscious a few minutes later. Hannan felt his head reeling. He looked up and saw one of the strangers trying to throw a switch lever. The other robber stood in the doorway. Hannan staggered to his feet and threw himself on the man at the switch. At the same moment he heard the whistle of the coming express. Hannan tried to grapple with the man, but he dodged and both strangers went out at the door as the express thundered past in safety. Hannan staggered back to the telegraph key, and managed to tell the office at Shamokin that the express had come and gone in safety. Then he set the danger signal for all trains and collapsed.

While the men lay unconscious the robbers returned, stripped and beat them and seem to have begun to rifle the office when they were in some way frightened off. By injecting heart stimulants the men were revived. They had been drugged with chloral hydrate.

Government Control of Telegraph and Telephones in Canada.

The Ottawa Board of Trade has made a practical departure that must bring the question of governmental cable, telegraph and telephone services to the attention of business men in all parts of the British Empire, says the Electrical World and Engineer. A circular letter has been drafted and will be forwarded to boards of trade and chambers of commerce throughout the United Kingdom and the colonies, urging the importance of the establishment of state-owned cables connecting the mother country with other parts of the empire. The proposal requires that not only the connecting transmarine cables shall be under Government control, but that land telegraphs, in the several British possessions, shall be state-owned. Canada is the only important part of the empire in which the telegraph service is in private hands, and the circular alludes to the report that the transfer of the Canadian telegraph lines to the Post Office Department, and the laying of a state-owned cable across the Atlantic, are now under consideration of the Dominion Government. The question of establishing the telephone service under post office management will also soon come up for consideration by the Government.

A subscription to TELEGRAPH AGE is one of the best investments a progressive telegrapher can make; it keeps him thoroughly posted.

Selections from the Mail.

Prof. H. S. Webb, M.S., of the International Correspondence Schools at Scranton, Pa., writes as follows:

"I appreciate TELEGRAPH AGE very much indeed and take pleasure in renewing my subscription for another year. It seems to me that at least every one interested in any way in the telegraph service should take your efficient journal. I frequently prepare descriptions of telegraph systems and apparatus for the sole use of students of electricity, and some time ago I wrote to you saying that I presumed you had no objection to my quoting from your paper. I should like the privilege to do so occasionally, if you have no objections, in each case of course giving both your paper and the author full credit for what I may use."

A reorganization of the various police and fire departments in the Philippine Islands was determined upon last spring, and Mr. Wm. C. Ergenzinger, a member of the Signal Corps, now stationed at that point, was tendered an important position in one of the departments as electrician. Having read in TELEGRAPH AGE of a paper prepared by Mr. Frank C. Mason, superintendent of the bureau of Police and Fire Alarm Telegraphs of Brooklyn, N. Y., entitled "The Progress and Needs of Fire and Police Departments," and read before the League of American Municipalities, he wrote to Mr. Mason for a copy of the same, and also for printed rules and regulations governing such departmental work.

Mr. Mason, in a note to this journal, dated June 15, says: "I enclose a letter just received from Wm. C. Ergenzinger, Candon, Philippine Islands, which speaks for itself. I have received many letters of similar character regarding the paper mentioned from all over the world, viz.: Queensland, Australia, South Africa, etc. Judging from this I conclude that TELEGRAPH AGE is a most valuable advertising medium; it certainly reaches all remote corners of the earth, and is read by people who are seeking information regarding electrical matters in general. I congratulate you upon your success."

Telegram Stamp Tax Repealed.

The repeal of the tax of one cent on all domestic telegrams went into effect July 1. Hereafter no messages, except those relating to foreign money orders, will require revenue stamps. Stamps may be redeemed, but they must be presented in quantities of the face value of not less than two dollars. And all claims for redemption must be prepared in the district where the claimant resides and forwarded by the collector of that district to the internal revenue bureau in Washington.

The Railroad Supply Company, of Chicago, has recently acquired numerous patents issued to W. W. Slater, H. C. Barnes and Frank A. Landee, controlling valuable features in electric signaling on railroads, both for highway crossing alarms and electric block signals. Hereafter the goods will be manufactured and sold exclusively by the Railroad Supply Company.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

BEAUMONT, TEXAS, WESTERN UNION.

The personnel of this office is as follows: P. G. Tompkins, manager; A. B. Forres, chief operator; John L. Henning, night chief operator; operators, Messrs. T. D. Ford, J. B. Oberfell, E. T. Whithread, Albert Lupau, Pierre Mercer, J. H. Mundy, E. W. Cassady, Samuel Guess, Claire Vallette, M. J. Ashford and Miss A. W. Godbury. Clerks: Messrs. Tulley, Chapman, Robertson, Talbert, Smelker, Dargan, Huston and Campbell, and a force of fifteen messengers.

There are three pool rooms here, which are doing a splendid business. Operators E. W. Cassady, J. H. Mundy and Fred Boutz attend to the telegraphing. There are also two oil exchanges, and both doing a thriving business. Operator M. J. Ashford handles the quotations at the Oil Exchange.

Foreman O'Malley is kept busy putting in a clock circuit. Ten clocks are already installed, and orders for many more are in his hands. Besides this clock circuit he has orders for two hundred call boxes, in addition to 182 boxes already in position. Several large office buildings are under construction, some of which are to be five stories in height. When these are completed we expect to be kept busy for some time furnishing call boxes, etc.

SEATTLE, WASH., POSTAL.

The personnel of this office is as follows: J. G. Blake, manager; J. A. Forehand, chief operator; J. J. Dunne, night chief; operators, H. S. Martin, Miss Rosa Byers, J. F. Kelley, C. D. Clark, W. J. Mead; Geo. Welch, day check; C. H. Funne, night check; R. S. Clark, delivery; Mrs. L. A. Nye, day receiving; N. L. Blake, night receiving; Miss Emma Zealand, bookkeeper; Mrs. Gritman, assistant bookkeeper; L. J. Brunette, lineman. Mr. J. Ralston Lytle has been transferred to Fresno, Cal., as manager for the Postal.

ST. LOUIS, MO., WESTERN UNION.

Miss Elsie Tanner returned from Eureka Springs, Ark., June 6, after an absence of two months.

Mr. P. D. Wark has been transferred to the main office, permanently, from the branch office list.

A "Book Shower" was tendered Miss Elsie Pauli, a sister of Miss Louise Pauli, June 6. Among the books received were copies of Dickens, Marlitt, Winston Churchill and others. Miss Elsie Pauli was married to Mr. Wm. B. De Young, June 10.

Mr. A. D. Wack, night operator for the Wabash Railroad at Ferguson, Mo., was a visitor June 12.

Business having outgrown the confines of the operating room it was found necessary to move the Metropolitan Department on the third floor.

The assignments of chiefs of the various divisions, and the new additional one are as follows:

Day force—C. W. Groos, eastern division; G. A. Riber, assisted by W. J. Armstrong, central division; C. W. Crary, assisted by C. W. Frey, southern division; Frank Spencer, way department; Andrew Steinbach, metropolitan. At the Board we find A. E. Van Tyne, wire chief, assisted by J. J. Lane and L. N. Boone. M. A. Hawley is chief of the wheatstone department. O. L. Turner helps out all around whenever occasion requires. Chief operator, W. H. Spencer.

Night force—Sid. B. Fairchild, wire chief: H. V. Crain, loop chief; E. H. Johnson, chief of eastern and central division; Henri Gosting, chief of southern division; C. H. Shell, general traffic chief; C. W. Henry, chief of the metropolitan; J. H. Gallagher, chief of way department. At the helm we find the same old congenial Col. M. D. Crain.

All night—L. P. Custer, chief operator.

KANSAS CITY, MO., WESTERN UNION.

Mr. Archie Rainey is again with us, after temporary absence in Chicago, and has been assigned to the regular force. All were pleased to welcome his return.

The many friends of Miss Florence Thompson will regret to learn of her very serious illness at her home in this city.

The wife of Geo. E. Parkell, of this office, died on June 12. A beautiful wreath and a choice lot of cut flowers were sent on the occasion of the funeral as a token of respect. Messrs. Clyde W. Severs, of Chicago, and O. C. Severs, of White Pigeon, Mich., half brothers to Mr. Parkell, were in attendance at the funeral. Both are telegraphers in the employ of the Lake Shore Railway.

Dr. S. D. Bowker, father-in-law of our esteemed manager, Mr. M. D. Wood, died very suddenly on June 8. He was local examiner for the

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T. M. B. A. and one of Kansas City's leading physicians.

T. M. A. Haston has severed his connection with the Western Union and is now a letter carrier in the Government service. He passed an excellent examination, only one going higher.

AUSTIN, TEX., WESTERN UNION.

Mr. H. S. Sawyer, formerly manager of the Western Union at Palestine, Tex., was recently appointed night chief of this office, vice W. S. Arnold, resigned.

Mr. Frank Vaughan, formerly with the Western Union at Corsicana, Tex., is a new addition to our force, taking the place of R. D. Bond, resigned.

Miss Mary Evans, recently of San Antonio, Tex., has charge of Igleharts branch office for the remainder of the cotton season, vice Miss T. A. Anderson, resigned.

PHILADELPHIA, PA., POSTAL.

Rheumatism has confined Mr. C. T. Koch, of the city department, to his home for several weeks, while Miss Jennie Melville is also at home on account of nervous trouble.

After spending many years on the Allentown-Eastern local, Mr. Samuel F. Higo was granted a change to another wire, the Reading-Pottsville local. Mr. H. O. Steltz has been assigned to the first named circuit, vice Mr. Higo.

Miss Lou Koch is looking forward longingly to her customary summer's vacation, anticipating a two months' stay at her home near Pottstown.

The latest report from Mr. Horace Holtzinger is that he is homeward bound from Hot Springs, Ark., whither he had gone in search of health.

Messrs. Fitzgerald and Monett enjoyed a short visit to friends in New York city.

Miss Hannah Brosnahan, of the city department, has resigned to accept another position at Mahanoy City.

Since moving out to a handsome suburban home in Germantown, Mr. James Wilson, manager of the Bourse office, declares that he has just found out the difference between living and existing.

LOS ANGELES, CAL., POSTAL.

Business is unusually good for this time of the year, and looks as though it would continue active throughout the summer months. Mr. Kubel leaves for the Springs August 1 for a two weeks' vacation; Mr. Lewis will leave for a month when Mr. Kubel returns.

Mr. Wallis will take a short vacation about June 1, and Mr. McIntosh leaves for a two weeks' absence July 15.

SEATTLE, WASH., WESTERN UNION.

Arrivals: Mr. E. S. Swift, from Vancouver, B. C.; Mr. H. M. Hammond and Miss C. Knox.

Departures: Mr. C. C. Willis, to Skagway, Alaska.

Mr. E. C. Warren is back at work after a month's sick leave.

Mr. H. Warren, manager of the Western Union at Zanesville, O., has returned home after a two weeks' visit with his son, E. C. Warren.

The recent raise of the standard salary for first class men, from $75 to $80 per month, by both telegraph companies, owing to the high rate of living expenses, was received with much gratification by the boys in the Northwest.

LOS ANGELES, CAL., WESTERN UNION.

Business has dropped back to about its normal proportion, and the members of the force are beginning to feel the need of a rest at the numerous beach resorts. Mr. McDonald will probably head the list, but may not return, as he had a better position in view.

The marriage of Miss Laura Coates, former manager of the Western Union office at San Bernardino, to a banker of that city, is announced.

NEWPORT, R. I., WESTERN UNION.

Mr. Frank H. Fay, of Westerly, R. I., has arrived to fill the position of operator at the Reading Room on Bellevue avenue, an aristocratic club composed of cottagers. Last season Mr. Fay was operator for the Postal Co. in the Newport Casino, and recently with the Postal at Manchester, N. H.

CHICAGO, ILL., WESTERN UNION.

Mr. James Jameson is reported very ill with lung fever.

Mr. William Barnard has the sympathy of all in the death of his wife, which occurred on June 6.

Mr. J. J. McCormick was seriously poisoned by poison ivy while gathering wild flowers in the woods recently.

Recent visitors: Manager Davis and the night report operator, of Decatur, Ill., and Mr. C. Warth, chief operator at Milwaukee.

Mr. George K. Nebray has returned from a vacation to his home at Cincinnati.

Miss Greeley has returned to her home in Indianapolis, Ind.

Mr. Fred Ferris has gone to New York.

The old timers were not a little aroused to satisfaction when they beheld Mr. Edward Lomasney rejoin the ranks after an absence of nearly nine years. His beautiful penmanship is a revelation to a great many of the younger set. The older ones will never forget those pretty specimens of workmanship he turned out years ago on first Boston.

There were "doings" at Fox lake recently when our assistant chief operator, Mr. Finley, traffic chief, Frank Richardson, and Dr. Cunningham set out on a Saturday evening upon a piscatorial incursion into pickerel and bassdom. There isn't much to say of the venture, although it lasted until Sunday evening.

Ohm Court, 673, C. O. F., gave their annual stag to its members and friends on April 25. The attendance was the largest this court has yet had. Addresses were made by Mr. Theodore B. Thiele, high secretary of the order; chief ranger, J. B. Kennedy, Thomas Hanley and others. The Electric Quartet, composed of Messrs. Meaney, Delavan, Rich and Anderson, rendered some fine selections, and there were solos by Messrs. F. X. Duenwald, McClure, Charles White and W. Gos-

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horn, while instrumental music and the accompaniments were furnished by a fine mandolin quartet, of which Messrs. Jay Phelps, Bert Forbes and Upp were members. One of the pleasant features of the evening was the splendid exhibition in ventriloquism by Ormsby Mitchell. The affair concluded with a program of athletic exercises.

THE ASSOCIATED PRESS NOTES.

New York office: Messrs. T. L. Mahan and C. E. Martin have resigned, and Messrs. A. M. Routt and O. W. Smithson have been appointed to fill vacancies. Mr. W. L. Waugh is off on sick leave.

Hartford, Conn.: Mr. W. A. Adams has resigned, and Mr. W. B. Seibert has been appointed to the vacancy thus created.

CHICAGO, ILL., POSTAL.

The entire force join in extending congratulations and best wishes to Miss Nellie Fiske, of this office, who resigned June 15, and was married on June 17 to Mr. J. F. Books, of this city.

Mr. A. E. Wilder has been appointed traffic chief in the St. Louis division, nights. Mr. R. B. Bradley has also been appointed to a similar position in the New York division, nights.

The telegraphers at the Board of Trade office of the Postal have organized themselves in two baseball teams, known as the "Easterners" and the "Westerners." Division Chief Cook is president of the Eastern team, and Division Chief Hawkins is president of the Western team. Their first game came off June 23, resulting in a victory to the Easterners, the score standing 13 to 12. There was an attendance estimated at 2,500.

Special skill was exhibited by Edward Williams and J. J. Brosman, the pitchers in the Westerners team. Following are the players: Westerners team—J. Barnet, T. Barnet, J. Duffy, J. J. Brosman, G. C. Williams, H. Ginsburg, J. Carroll, Edward Williams, Edward Hearn. Easterners team—T. Taylor, W. P. McGann, G. Harding, C. Egelston, E. Egelston, W. J. O'Brien, G. Dodson, J. Ebbs, L. Perrin. H. B. Allen, umpire.

Mr. Maddock, of the San Francisco local, nights, has resigned and gone to New York.

Mr. S. D. Barger has been given a straight night trick and is working the New York bonus wire with Mr. Swift, vice Edward Hurn, who is on days at the Board of Trade.

Mr. Fred W. Hans, of the New York division, is now wire chief on the east board, Mr. B. C. Elder holds a similar position on the west board, and S. J. Thomas is our newly appointed loop chief.

Miss Jenny Sanborn has resigned to accept a position with the Chicago Telephone Co. The best wishes of all go with her.

Mr. Al. Bollasie has been appointed chief of the check force, vice Mr. Haggerty, resigned.

Mr. T. P. Harrington is reporting regular at the Board of Trade.

Mr. W. G. Phillips, repeater man of the San Francisco-New York wire, has been absent a few days, visiting relatives in Minnesota.

Mr. E. P. Sherman is also away on leave of absence.

Mr. David Duff, of Winnipeg, has been added to the night force.

Arrivals: Messrs. W. H. Conklin, of Winnipeg; W. E. Goodrich, of New York; L. M. Walden, of Prescott, Ariz.; J. J. Uhel, of the Western Union, Chicago; Aginau, Roabe, Abrams, Konefsky, Splann and Fox.

Departures: James O'Brien, to The Associated Press at Milwaukee, Wis.

NEW YORK, POSTAL.

Mr. F. F. Norton, our general traffic chief, and Mr. Joseph Carr, one of our operators, were on the ill-fated ferryboat Northfield, of the Staten Island line, when it sunk, after a collision in the harbor a few days ago. They had a very narrow and thrilling escape, the boat sinking in less than seven minutes.

Mr. E. A. Coney, lately from the electrical engineer's office, now traffic chief on the South and West, and assistant to General Traffic Chief F. F. Norton, locates all the faults in the underground, submarine and aerial cables for the Postal Company in the metropolitan district. He has become very proficient in this important branch of the service, and has made some very close measurements. Mr. Coney has had a long experience as chief operator, having filled nearly every position since he was appointed in 1893. He is also an expert operator, and knows all the code in the book.

We were honored the past week by a visit from two of the finest lady operators in the West, Misses Lowe and Wilson, from the Postal office, Des Moines, Iowa. They made a brief call upon Mr. E. A. Coney, who was in Des Moines during the Kansas City convention last year, in charge of the repeaters at that point. They were very much impressed with our city and will return with many pleasant memories.

Mr. Glen Newman, quad chief, has returned from a two weeks' vacation passed at his home and at the Pan-American Exposition.

Messrs. J. M. Quill and E. B. Stockwell have returned each after an illness of two weeks.

Mr. B. F. Wilson leaves on July 3 for a trip to Lake George and the Adirondacks in search of a well earned rest.

Beware of Ointments for Catarrh That Contain Mercury,

as mercury will surely destroy the sense of smell and completely derange the whole system when entering it through the mucous surfaces. Such articles should never be used except on prescriptions from reputable physicians, as the damage they will do is tenfold to the good you can possibly derive from them. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, O., contains no mercury, and is taken internally, acting directly upon the blood and mucous surfaces of the system. In buying Hall's Catarrh Cure be sure you get the genuine. It is taken internally, and made in Toledo, Ohio, by F. J. Cheney & Co. Testimonials free.

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Hall's Family Pills are the best.

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The Postal is represented at the World office days by Mr. W. H. Rhodes, who handles the press matter for that journal in fine shape.

The force loses a bright lad, and a favorite with all, by the death of John Meehan, of the distributing force in the gallery. He was taken ill suddenly June 12, and died on June 13. A fine floral piece was sent by the force on the day of the funeral, and six members acted as pall bearers.

Mr. Joseph Weighart, formerly of this office, who recently graduated from the medical department at Cornell University, has received an appointment at the French Hospital, New York.

Resignations, City Department—Miss Kittie Coleman, Miss M. S. Christian, Messrs W. C. Wilson, G. Lehane and E. M. Canedy; Southern and Western Divisions—Messrs. John Faircloth, E. S. Runyon, B. M. Martin and J. O. Newman.

Arrivals, City Department—Messrs. P. O. Purcell, J. M. Breslin, H. S. Hicks and J. P. McCarthy; Southern and Western Divisions—D. J. Ellington, J. J. Fourney, J. J. Horner and J. E. Maddock.

PHILADELPHIA, PA., WESTERN UNION.

The Western Union branch office in the Bourse Building, this city, ranks as the finest and most up to date branch office in the downtown district. It was established December 15, 1895, with Mr. V. G. Hudgins acting as temporary manager, being assisted by one operator and one clerk. After organizing this office Mr. Hudgins was called upon to open another downtown office, Mr. D. White relieving him January 1, 1896. Mr. White acted as manager until September 17, 1896, when he was appointed manager of the office at 307 Walnut street.

Mr. Morris C. Neipling was then appointed permanent manager, and has continued in charge since that date. Under his direction the increase of business has necessitated an increase in the office force from one operator and one clerk to three operators and three clerks, to say nothing of a corresponding increase in the number of the "Boys in Blue."

The office is situated in the most active section of the broker district, and the bulk of the business consists of stock and grain messages, all of which require careful and speedy handling.

Having direct wires to all commercial centers, Mr. Neipling, with the able assistance of Operators E. Francis Groena, Joseph E. Mullen, William J. Seymour and Clerks Miss Florence B. May and Messrs. O'Keefe and Fallon, has been able to handle the business to the entire satisfaction of all his patrons.

Mrs. DeGinther, the new manager at Broad street station, is very popular with the patrons of that office.

Arrivals: Messrs. E. V. Wedin, Jr., New York; W. Morrison, Postal, Philadelphia, and C. Kelley, Philadelphia.

Miss Cullen entertained recently at dinner at the Parkside, West Philadelphia, Misses Mintzer, Riley, Golden, Dennis and Bullen.

NEW YORK, WESTERN UNION.

Mr. Alex Kline, the cable expert of the Western Union Telegraph Company, New York, will leave for Alaska on August 1, to lay a cable now being manufactured by Mr. W. R. Brixey, at Seymore, Conn. This cable will be used by the United States Government.

Mr. Theodore L. Cuyler, Jr., assistant secretary of the Postal Telegraph-Cable Company, New York, has been elected a member of the Board of Directors of the Serial Building Loan and Savings Institution.

Mr. R. M. Telschow, formerly of this office, is the happy father of a daughter, born June 14.

Mr. Thomas Donahue, of the wheatstone department, resigned June 15, to accept an appointment as letter carrier in Brooklyn, N. Y.

Mr. E. Payson Porter, while walking on Broadway, had his pocket picked of a wallet containing valuable papers and $25 in cash.

The father of E. M. Anson had a serious fall from a ladder in Lockport, N. Y., and the worst is apprehended.

Appointed to regular force: Messrs. J. G. Hoppes, Thomas Gregg, A. J. Roberts, A. H. Vanlandingham, C. L. Williams, C. R. Crowell, J. F. Wood, J. J. O'Brien, J. T. Moran, W. W. McNamara, L. B. Goodwill, A. J. Tierney, N. C. Sears, H. A. Roberts and Frank Lowery.

Appointed to waiting list: Messrs. J. H. Williams, C. W. Minier, W. G. Wilkie, W. V. Hill, J. B. Muir and T. J. O'Regan.

Resigned: Messrs. C. H. H. Cottrell, who rteurns to New Orleans; F. T. Disney, P. J. Heffernan, P. O. Purcell and T. J. McGinn.

Mr. George Cornwall, secretary to President Wheeler, of Wheeler & Wilson Sewing Machine Company, Bridgeport, Conn., was a recent visitor.

Charles E. Barto has returned after a week's absence, on account of a fall, which strained his hand.

Mr. John R. Heidemark, wire chief on southern switch, and Mr. George Schriever, traffic, southwest, are on vacations. Also Mr. J. W. Heech, of the Boston wire.

Seventy-six persons were on board the "Western Union," which went to the fishing banks on June 2-3. Many phenomenal catches were made, but it would be invidious to name the principal one.

Miss Emma Ganong will go to Belmar, N. J., and Mr. T. F. Nolan to Long Branch, N. J., for the summer, July 1.

Mr. John Rathbone has had another abscess, this time in his right eye, and is not yet able to work.

Lieut. W. H. Gunning has gone to the Hotel Normandie, N. J., for the summer, as room clerk and operator. Mr. Gunning proved his efficiency as a room clerk at the Royal Poinciana Hotel in Florida last winter.

It is a pleasure to announce that Mr. J. W. Evans, who was first sergeant in the Signal Corps in the Philippine Islands, and served through the war with Spain, recently passed the State regents' examination with high honors. Mr. Evans is a credit to the profession.

The following named young ladies have left us for the summer season, and are now working in Long Branch, N. J.: Miss Anna C. Love, Hollywood Hotel; Miss Jennie Sykes, Ocean House; Miss Nellie Cleary, West End Hotel; Miss Anna Schwin-

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ger, The Pannaci; Miss K. Morrissey, Scarborough Hotel, and Miss M. Hopkins, United States Hotel.

Mr. Chas. F. Annett, assistant superintendent of telegraph of the Illinois Central Railroad, Chicago, Ill., was a recent visitor in this building. He was heard to remark that General Eckert was the best preserved man for his age he had ever met.

Mr. A. R. Brewer, secretary of this company, is the youngest looking official in the service. It will be a surprise to many to know that Mr. Brewer has been secretary of this vast corporation for twenty-six years, and that he is only 53 years of age. He began his telegraphic career, like thousands of other successful men, at the key.

Fred T. Meyer, a native of the South, and for the past twenty years one of New York's prominent telegraphers, died of cancer of the stomach, in Brooklyn, N. Y., June 28. Mr. Meyer had been in poor health for some months past, but his friends did not realize that the end was so near. For several years he has been connected with the race bureau in this office, where he was regarded as one of the most efficient men in the service. He was a governor of the Magnetic and Morse clubs and a member of all the telegraph organizations.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

A Case of Writer's Cramp Cured.

Editor TELEGRAPH AGE:

A word or two about paralysis and my own experience may be of interest, I venture to say, to a great number of operators. Considerable has been said about a probable cause, treatment, etc., but I have yet to find one case as stubborn that had as phenomenal a recovery as mine.

I am going to give a history of it from the beginning to its wind-up.

While working nights at Los Angeles, Cal., I put in the greater part of my time during the day studying, averaging about five hours' sleep. True, there were days when I could have had more sleep, but was, as a rule, far too nervous to benefit by it. After nearly a year of this kind of thing there could be but one result, namely, breakdown. Of course, it will be said I should have foreseen that, but when one has an ambition there is no telling how far one will go. I plead an ambition.

About this time I was transferred to a day trick, and my studies for the time being were shelved. My grip had been troubling me for some time, and a red-hot circuit soon saw my finish. What I experienced during the next three or four weeks can only be described as agony in its most intense form. I took a lay off of four months, which were spent in improving my health generally, and succeeded in overcoming all ailments but my grip. Every bit of writing was done with my left hand. I camped in the mountains, chopping brush and doing heavy work and almost anything in the way of outdoor exercise that I thought might help me. At times I found it a great effort handling any light object like a knife or spoon, and it was quite out of the question trying to butter my bread. At the expiration of these four months I resigned my position and engaged in other business. A year later I returned to the key at San Francisco and found I could use my right hand quite a little, but two weeks on an overland circuit wound up its career with a snap that was not to be mistaken for a temporary setback. My left hand did not hold up long and was soon almost as bad as the right, and receiving was about all I could do. You may imagine my position on an "extra" list—very discouraging to say the least.

A friend suggested static electricity, but as I had tried both galvanic and faradic with bad results, I was loth to make matters worse. Indian clubs, dumb bells and wrist machines had only aggravated the case, the way I accounted for this being that the nerves controlling the muscles used in telegraphing and penmanship were completely exhausted while the others were normal. Exercise strengthened the normal ones, but the exhausted nerves remained as they were; ay, they were even worse off than before, for where they were outclassed before they now were completely overpowered. These played out nerves had first to be restored to a normal condition before exercise could be thought of.

I finally tried static electricity. From the very first it acted soothingly, whereas the other electrical methods had only riled up my poor arm. After about two months of treatment I got my first reward. It was not much, simply a slight twitching of the index finger, but after this first awakening the nerve connected with it could be made to respond more and more. I finally could use my right hand by resting the wrist on the table and turning the hand sideways, working the key with my little finger. Gradually I gained the use of the third finger in the same manner; then my thumb, which I was enabled to use for several months. The middle finger came into line presently, and now and then the index finger could turn out an occasional letter and even a word by clasping the side of the key firmly with the thumb. About this time business increased to such an extent, I could not find time to take my daily treatment, and finally had to give it up. From now on I was obliged to work from fourteen to eighteen hours every day. This continued for four or five months, my hand improving all the time. On December 1, 1900, I was given a regular day trick on the Chicago stock wire. I took the stocks on manifold with a pencil and it did not bother me at all.

Little by little I could feel my grip improve, and now, June 15, I can safely say it is as good as

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any one could wish for. Any operator at Chicago working a San Francisco wire can testify to the condition thereof, my wire signal being "A." An overland circuit is not an easy wire for the best of grips, and I feel very well satisfied with the result of the static treatment.

From my own experience I should judge that any man can do what I did, and every one that witnessed my trouble pronounced it as bad a case as they had ever seen.

Several right here in San Francisco tried this treatment before I did, but not one followed it up any length of time. I put in nearly six months, receiving a treatment every day, Sundays excepted: After I was compelled to give up the treatment I gave my arm a brisk rubbing with a brush from shoulder to elbow every night, finding this the best time for such exercise as the rubbing made it nervous and the night's rest gave it a chance to recover. I have suggested this rubbing practice to quite a number here that have been troubled with bad grips, and those who followed my suggestion claim it has helped them.

Because it made their hands nervous for a few days at first, some of them became alarmed and discontinued the practice. That was the time when they should have kept it up. I find that the average operator will listen to all you have to say about helping him, but he will do little or nothing to help himself.

Since my arrival here, a little over two years ago, I know a dozen men that might have been benefited by this same treatment, but nearly every one either begrudged the small expenditure for what would readily have brought them from $80 to $130 a month or the little time it required. I was not making $50 a month when I began the treatment, but I had the backbone to see it through, and now it's a poor month that does not bring in twice as much. W. S. OTTE.

San Francisco, Cal., June 15, 1901.

[Operators interested in the method of treatment presumably employed in this and many other cases will find very complete information in the little booklet entitled "The Cure of Telegraphers' Paralysis, published by TELEGRAPH AGE, New York. Price, 50 cents.—EDITOR.]

The French Government is undertaking the construction of an extensive submarine cable system comprising some 10,000 miles at an estimated cost of $30,000,000. The Government proposes to connect France with its colonies in all parts of the world, and compete for business with the existing cable companies.

Important Telephone Decision.

Judge Brown, of the United States Circuit Court, decided at Boston on June 24 against the American Bell Telephone Company in the suit for infringement of patents brought against the National Telephone Manufacturing Company and the Century Telephone Company.

Bills in equity entered by the Bell company are dismissed on the ground that the patent involved in the first case was void, and that the one affecting the second was either void or so limited as not to be infringed by the defendants. These cases have been pending for six years, having been brought by the Bell company in August, 1895. The plaintiff, it is said, will take an appeal.

Andrew Carnegie's Gift to House the Wheeler Electrical Library.

The interesting announcement is made that the American Institute of Electrical Engineers has just received from Mr. Andrew Carnegie a check for $6,880.28, with which to house, catalogue and complete the Wheeler electrical library. This sum is said to duplicate exactly the cost to Dr. Schuyler S. Wheeler of the Latimer Clark library presented to the Institute on May 21. Mr. Carnegie's gift will enable the conditions imposed upon the institute for cataloguing and housing the library to be fulfilled soon.

A fault was discovered recently in the Eastern Extension Telegraph Company's cable to New Zealand which the cable ship Recorder was dispatched to repair. It was found that the cable, which rested on the sea bottom, about 300 fathoms deep, had been nearly bitten through, the broken tooth of a huge fish being found embedded in the cable at the bitten point.

Mr. Frank C. Mason, superintendent of the telegraph bureau of the police department, Brooklyn, N. Y., and a member of the Executive Committee of the International Association of Municipal Electricians, desires it to be stated that a handsome souvenir badge will be mailed to any telegraph operator or electrician who will call the attention of the Superintendent of Fire or Police Telegraph or City Electrician of their city or town to the notice of the next annual convention of the Municipal Electricians on September 2-4 next, as announced on cover page xiii of this issue, and will send the name of the party so notified, provided he is not already a member of the association, to Mr. Mason.

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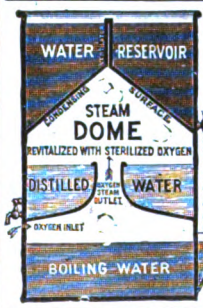


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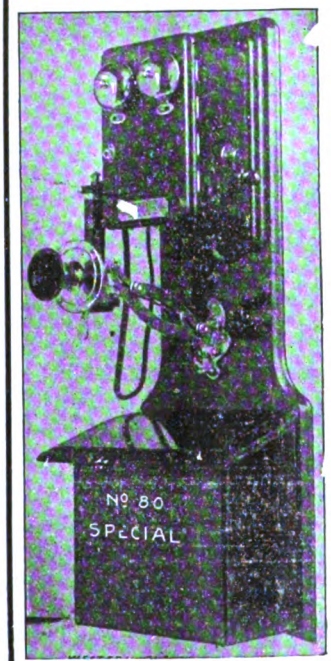


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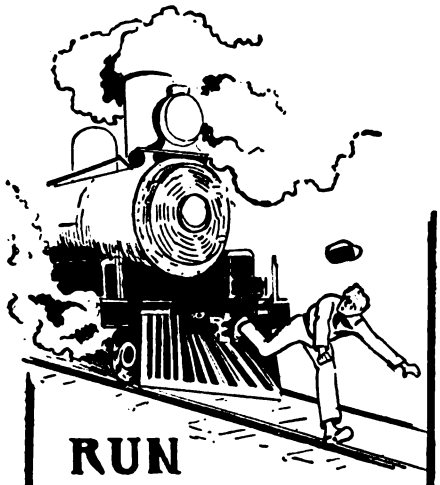
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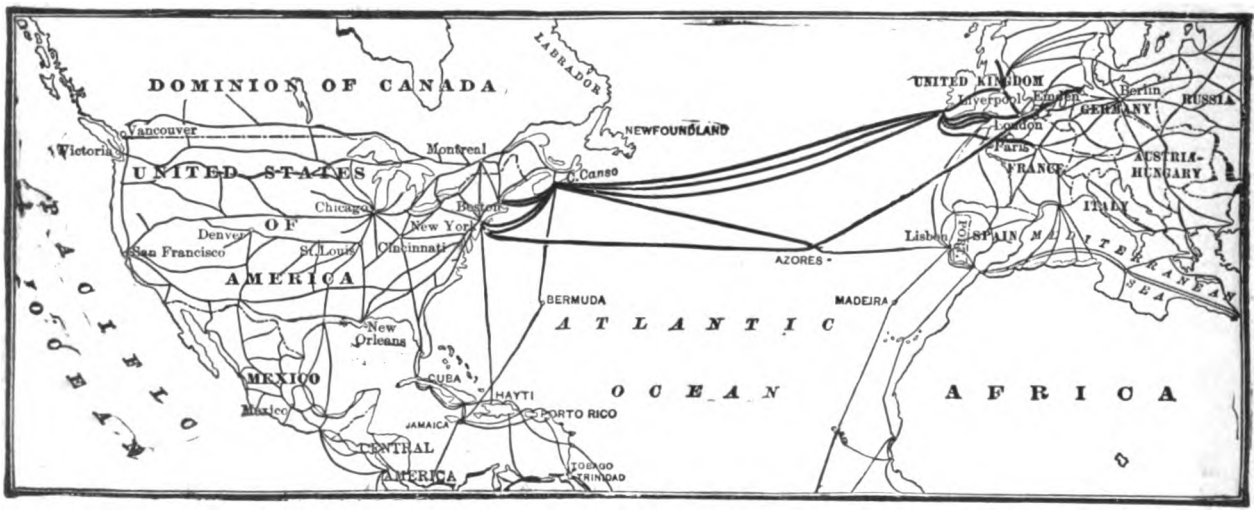
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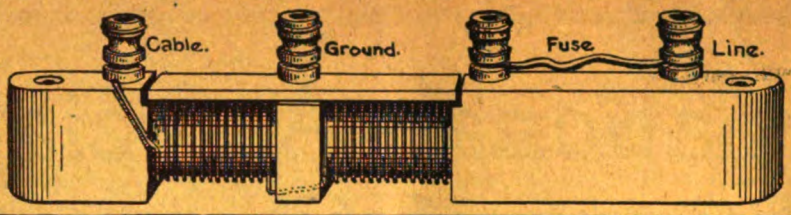
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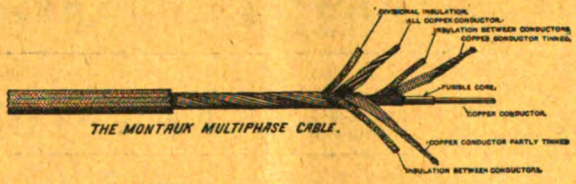
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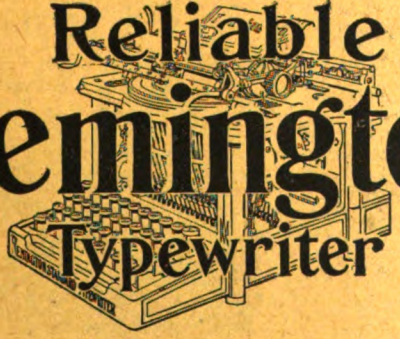
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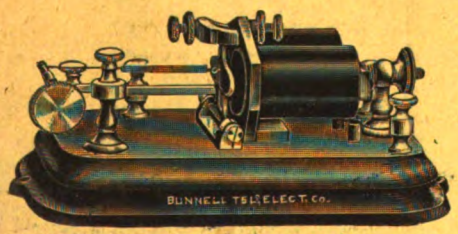
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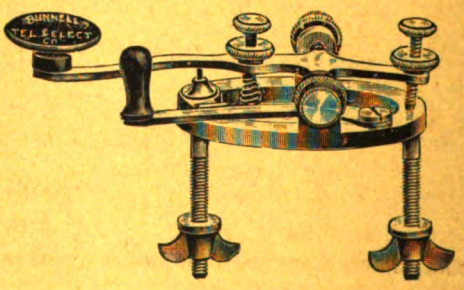


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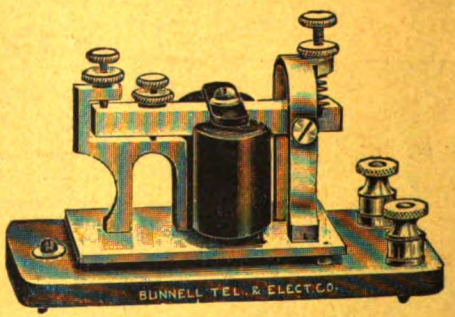


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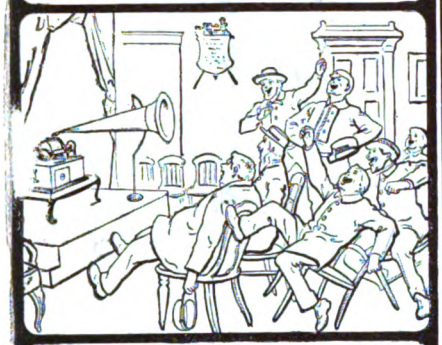


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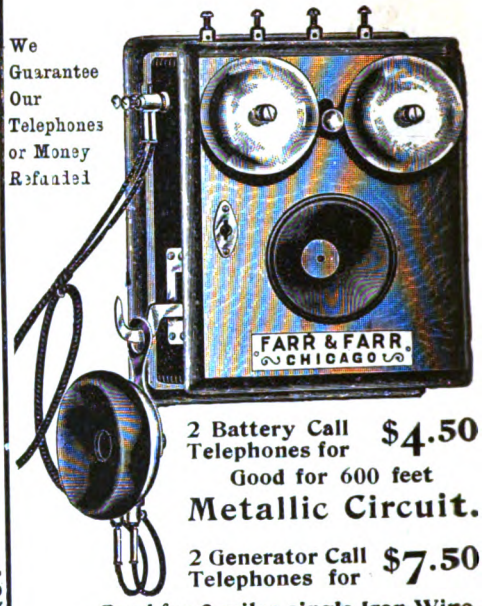
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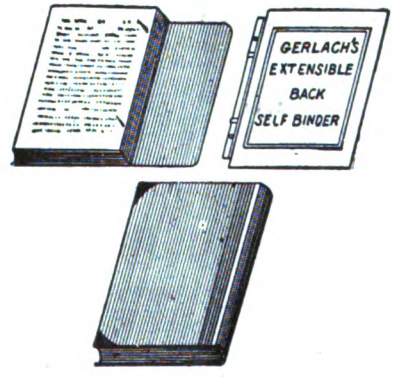
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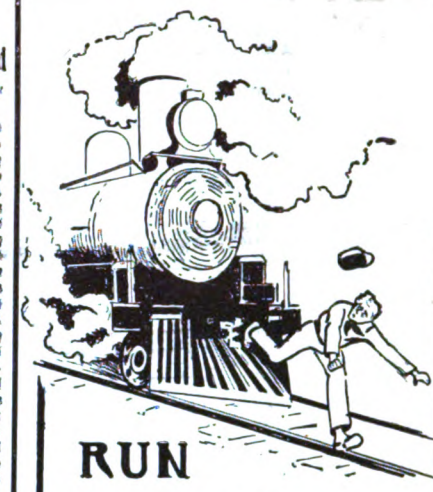


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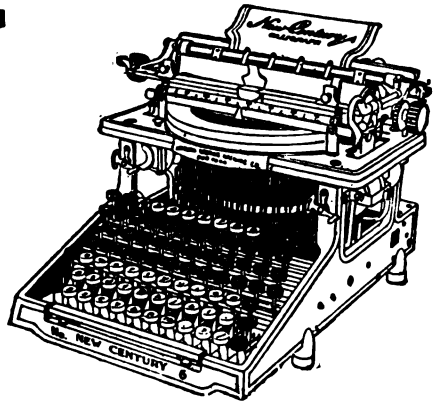
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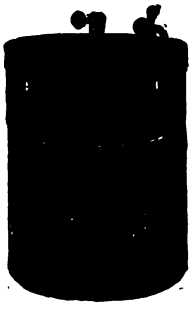
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THE TELEGRAPH AGE.

No. 14. NEW YORK, JULY 16, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

Now and then some subscriber asks a question to be answered through this journal, which at first seems so easily explained that we frequently find ourselves wondering why he did not first seek a solution of the problem nearer home before writing to the AGE.

A little reflection, however, discloses the fact that there is often more in an inquiry than appears on the surface, and in addition to emphasizing nicely the difference between a thorough and a superficial understanding of a subject, shows upon what thin ice we all at times find our knowledge unconsciously resting until attention is thus called to some simple matter which we may have either forgotten, or possibly never thought much about. At any rate when studying we too readily accept bare technical statements as conveying full knowledge of a subject, where as in qualifications lie a distinction which frequently perplexes us later on when the same subject is presented in a different form.

These remarks are called forth by the following note from a correspondent:

"Will you please explain the manner in which the armature of a polarized relay is alternately repelled and attracted between the local contact points according to the direction of the electric current traversing the coils? According to text books if a current of electricity be caused to flow through a coil of wire encircling a bar of iron the respective ends of that piece of metal will be either N—S or S—N, according to the direction of the flow (Fig. 1), but always unlike in polarity; hence if the said extremities be bent so as to nearly touch each other they will invariably attract each other regardless of the direction of the current magnetizing the metal.

Now, if I understand the construction of a polarized relay correctly the iron core, the steel magnet, and the movable armature form one continuous bar or mass of metal bent so that the two ends thereof —the movable armature and magnet core—touch each other, as seen in Figure 2. What perplexes me is this: When the line current sends alternating polarities of current through the coil around the spool end of this bar what prevents the armature from being invariably opposite in polarity to that in the other extremity and consequently remaining permanently in one position? Of course, I understand that the steel in such a relay—barring the soft iron cores within the coils—is a permanent magnet; but even so my impression is that if the magnetizing current in the coils be strong enough the initial lines of force are merely overpowered and the surplus energy gives the magnet a polarity of it's own—the original rule holding good."

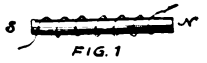


FIG. 1

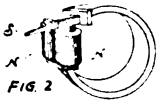


FIG. 2

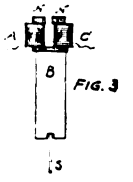


FIG. 3

In reply we will say that the enquirer's perplexity arises from the erroneous impression that the manner in which a current of electricity traverses the coils of a "bar magnet" and that of a polarized relay, respectively, is identical. If he will trace the route of the current through each apparatus he will learn that in case of the bar magnet the current encircles the metal entirely in one direction, thereby creating opposite polarity at each end of the bar. In the polarized relay we find practically three extremities (see Fig. 3), as the iron in the spools make two projections at one end of the horseshoe. A current of electricity entering one of the spools naturally follows the windings, hence it leaves via the other spool. The consequence is that the magnetic circuit set up by the current itself lies entirely within the two spools. The whole mass of the steel horseshoe and armature merely playing the part of a very thick heel piece, the initial permanent magnetism of which is in no wise disturbed by the action of the electric current traversing the coils in the spools.

Now the cores within the spools of a relay being

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composed of soft iron contain no permanent lines of force and assume polarity in accordance with the direction of the magnetizing force. When no current traverses the coils the soft iron, through inductance from the steel, takes on the same polarity as that end of the steel itself, hence both cores of the spools are of identical polarity. That explains why the armature will cling equally to either contact point when we go on the "ground" in order to take a balance.

Directly a current of electricity traverses the coils, however, the two cores and helix become a little separate horseshoe-shaped magnet perched on one end of the original steel magnet—each spool possessing opposite polarity. Under these circumstances the armature of the relay, the polarity of which does not change, will naturally be attracted to the core possessing a polarity opposite in sign to it's own, hence it is the alterations of polarity which takes place in this little annex magnet alone that does the trick.

Recent Telegraph Patents.

Mr. H. T. Johnson, of Jersey City, N. J., has been granted a patent for a telegraph instrument.

Mr. H. Shoemaker, of Philadelphia, Pa., has been granted a patent for an automatic telegraph system.

Business Notice.

The Rogers Electrical Works, formerly at 55 Dey street, New York, has moved into its new quarters at 53 Dey street, where they have a fully equipped factory with a capacity of 1,000 telegraph keys, 500 pony relays, 300 regular standard relays, 800 learners' telegraph outfits, 500 medical apparatus and 300 switches, lightning arresters of divers kinds and sizes. The machinery is of the latest type. There is also included a complete nickel plating outfit of Harrison & Van Winkle make, which is the best on the market. This new organization is manufacturing everything under patents granted to and held by Mr. Ulysses G. Rogers, who is a practical man in every respect, having learned telegraphy when a boy, but leaving it to pursue different walks in life, and taking up mechanical engineering. Having mastered the machine shop and the drawing board, he roamed over the country at this business until nine years ago, when he settled in New York. He never forgot the "click," and after having been superintendent of the factory of J. H. Bunnell & Co. at 440 Canal street, New York, he founded the firm known as above—the Rogers Electrical Works, of which he is manager as well. Mr. Rogers has a record that any man of his age should be proud of, and is turning out goods ranking in quality first, afterwards in quantity. As will be seen on another page of this issue, one of Mr. Rogers' patents is in the shape of a telegraph key, and it is a strictly first-class article in every respect. The concern reports plenty of orders and good profits.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for a sample copy of the August 1 issue.

Personal Mention.

Mr. John W. Mackay, president of the Commercial Cable Company and the Postal Telegraph-Cable Company, New York, is in London, England, on a vacation.

Mr. Charles A. Tinker, general superintendent of the Western Union Telegraph Company, New York, is off on a fishing trip of ten days at Lake Ontario and vicinity.

Mr. C. M. Sheaffer, formerly division operator at Pittsburg, Pa., has been appointed superintendent of telegraph of the Pennsylvania Railroad Company, with headquarters at Philadelphia, Pa., vice, Mr. Arthur Hale, resigned.

Mr. Edward A. Leslie, an old time telegrapher, formerly general superintendent of the Baltimore and Ohio Telegraph Company, New York, has accepted the position of general manager of the Kings County Electric Light and Power Company, of Brooklyn, N. Y.

Mr. Charles H. Boynton has been appointed superintendent of the eastern division of The Associated Press at New York, vice Mr. Frank W. Mack, resigned. Mr. Boynton is the son of Charles A. Boynton, superintendent of the southern division of The Associated Press at Washington, D. C., and nephew of Gen. H. V. Boynton, the most prominent figure in newspaper circles at the Capital since the days of the Civil War. The new appointee, who is an exceptionally bright newspaper man, so qualified, both by birth and by training, is well fitted to undertake the peculiar work of this important position.

Miscellaneous Items.

Mr. W. D. Terrell, chief of the Postal Telegraph-Cable Company, Washington, D. C., has accepted a position with a New York manufacturing house.

Mr. Perry Chamberlain, an old time New York telegrapher, is now representing The Osborne Company, an art printing manufacturing concern of New York.

The outing of the Magnetic Club of New York, which occurred on June 25, was the most enjoyable in the history of that organization. The numerous and costly prizes which were given away has caused regret among several hundred members of the craft that were not present to participate in the drawing for these prizes.

In a previous issue in an item stating that the Western Union Telegraph Company's main office in Cleveland, O., had been moved from one floor to another in the same building without the slightest interruption of business, the credit for this work should have been given to Dr. J. C. Barclay, the electrician of the company at Chicago, Ill., and to Mr. H. D. Jones, of Cleveland.

New York Visitors.

Mr. C. R. Richardson, an old time telegrapher, now engaged in outside business at Marietta, O.

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Mr. E. J. Nally, general superintendent, Postal Telegraph-Cable Co., Chicago, Ill.

Mr. B. P. Hancock, chief operator of the Postal Telegraph-Cable Company, St. Louis, Mo.

Mr. M. C. Corbett, superintendent of the Western Union Telegraph Company, Cleveland, Ohio.

Mr. B. F. Dillon, superintendent of the Western Union Telegraph Company, Jacksonville, Fla.

Mr. G. C. Felton, assistant superintendent of the Western Union Telegraph Company, Dallas, Tex.

Mr. Morris W. Mead, of Pittsburg, Pa., superintendent of the Bureau of Electricity and president of the International Association of Municipal Electricians.

Resignations and Appointments.

Mr. A. H. May has been appointed manager of the Western Union office at Topeka, Kan., vice H. L. Bevelle, resigned.

Mr. W. Y. Nolley, formerly manager at Shreveport, La., for the Postal Telegraph-Cable Co., has been appointed manager for the same company at Fort Worth, Tex.

Mr. George E. Fletcher, who has been manager of the Duluth office of the Western Union Telegraph Company, has resigned. His successor is W. Humes, of Marquette, Mich.

Mr. Ernest Pare, son of Chief Operator Pare, of the Western Union Telegraph Company, Fall River, Mass., has been appointed operator for the Western Union at that point, vice John Walsh, appointed manager at Jamestown, R. I.

Mr. Morgan Jones, who was connected with the wire service of the Carnegie Steel Company in New York, has been promoted to be manager of the telegraphic and telephone service of the United States Steel Corporation, at New York.

Obituary.

Daniel P. Hartley, a telegraph operator of Columbia, S. C., died in that city on July 6.

Charles E. Abbott, a telegraph operator, 21 years of age, died of peritonitis after a brief illness at Toledo, Ohio, on June 24.

William A. Oridge, a well-known telegrapher of Elizabeth, N. J., and for the past few years in charge of the telegraph interests of the Central Railroad of New Jersey, committed suicide by shooting himself on July 6.

AMERICAN UNION TELEGRAPH COMPANY.—The annual meeting of the American Union Telegraph Company of New Jersey was held at 76 Montgomery street, Jersey City, N. J., on July 10. The following named officers were elected: Thos. T. Eckert, president; Chas. A. Tinker, vice-president; Thos. T. Clark, secretary and treasurer. Directors—A. R. Brewer, J. B. Bertholf, Thos. F. Clark, Thos. T. Eckert, Chas. A. Tinker.

The Keep-Out List.

What is called the "Keep-out list" maintained by TELEGRAPH AGE is a register of persons who desire for various reasons to have their names withheld from publication. This list has been kept by this journal for years, and now embraces many thousands of names on its pages, a silent record of many now in active service and of those who have come and gone and who have figured with more or less prominence in the history of the telegraph. A reference to these pages, eloquent in the number and in the names there revealed, is apt to awaken a long train of reminiscence, and an interesting chapter might readily be written from the recollections thus incited. The fraternity is well represented there; no distinction is made, for under the proper headings in this enrollment appear in regular order the names of officials and operators alike.

All this leads us to say that frequently we are called to account for eliminating from correspondence the names of individuals occasionally mentioned therein, and asked why we do so. The answer is a simple one. The name is on the keep-out list; and this list is and has been held sacredly inviolate.

On this list, for instance, appear the names of Leonard Cox, traveling auditor of the Western Union Telegraph Company, and of Thomas E. Fleming, special agent of the Postal Telegraph-Cable Company, New York. It is easy, of course, in such cases as these, to understand why items concerning these gentlemen are withheld from publication. From the very nature of their business they do not, of course, wish the entire telegraphic profession to be posted as to their whereabouts or future movements. Yet nearly every week we receive paragraphs containing favorable mention of these officials from regular agencies and other sources, and frequently correspondents take exception to our withholding such items from our columns. They imagine that TELEGRAPH AGE, in refusing to print information of this character, has deliberately slighted those whom it should be pleased to honor. It appears, however, in this instance there is more honor conferred in the breach than in the observance. So, too, of others. There are excellent reasons why the names sent for publication should be omitted. We must, therefore, once again say to our correspondents to keep in good temper these warm days, even if the carefully prepared notices, the well-intentioned "puff" of certain individuals do not appear in print. The names so mentioned are on the keep-out list, and until they are taken off of that list by those immediately concerned, their names cannot appear in these columns.

The Old Time Telegraphers and the United States Military Telegraph Corps.

Preparations for the joint annual meeting of the Old Time Telegraphers' Association and United States Military Telegraph Corps, to be held at Montreal, Quebec, September 11, 12 and 13 next, goes on apace. The Executive Committee met at Montreal, July 3, and transacted considerable business. At this meeting a special committee was chosen to consider the project of a home for telegraphers, and to report on the same at the convention in September.

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Expressions of opinion bearing on the subject are invited from members of the fraternity, whether members of the Old Time Telegraphers' Association or not. These should be addressed to any one of the committee just appointed, which is made up as follows: Addison C. Thomas, superintendent of leased lines of The Associated Press, Chicago, Ill., chairman; Frank Richardson, chief operator, Western Union Telegraph Co., Chicago, Ill.; S. A. Duncan, assistant general superintendent of the Postal Telegraph-Cable Company, Atlanta, Ga.; Walter C. Burton, Western Union Telegraph Company, New York; Col. W. B. Wilson, president United States Military Telegraph Corps, Holmesburg, Philadelphia, Pa.

As an evidence of the vigorous growth of the Old Time Telegraphers' Association, Mr. John Brant, the secretary-treasurer, states that 158 applications for membership have been received since the last annual meeting, among them being one from Robert J. Einbeck, an old time telegrapher, and now sheriff of Dawson, Yukon Territory, Canada.

The proposition of the Telegraphic Historical Society of North America for consolidation with the Old Time Telegraphers' Association will come up for consideration at the meeting in September.

Consolidation of Building Loan Associations.

The Electric Building Loan and Savings Association, at a special meeting of its shareholders held in New York on July 12, accepted, by a practically unanimous vote, the proposition to consolidate with the Serial Building Loan and Savings Institution, whose offices are located at 195 Broadway, New York. This action will greatly strengthen both organizations, it being the intention to conduct the business in future under the charters of both associations. Hereafter the management of both associations will be conducted by the officers of the Serial. The secretary of the Electric Building Loan and Savings Association, Mr. E. S. Butterfield, who has acted in that capacity since its organization, will turn his office and effects over to Mr. E. F. Howell, the secretary of the Serial, who will in the future act as secretary of the consolidated organizations.

Mr. F. W. Jones, Mr. E. S. Butterfield and Mr. Geo. W. Blanchard, of the Electric Association, have been elected directors of the Serial Association. The officers in future of the Electric will be the same as those of the Serial.

New Pacific Cable.

The State Department is in receipt of information concerning work on the British Pacific cable, which is to connect the Dominion of Canada with the Australian confederation. The new cable is to be 5,834½ miles in length, the longest ever constructed, and will be transported and laid by one ship, which is now being built for that purpose. The cable will run from Vancouver Island to Fanning Island, which lies south of Hawaii, a distance of 3,337 miles, before landing is effected; thence it will be laid to the Fijis, to Norfolk Island and then to Queensland.

New Telegraph Line.

The local manager of the Pacific Postal Telegraph-Cable Co., at Seattle, Wash., announces that telegraphic communication is now open from that city to Port Simpson, Alaska. The completion of the line to the latter point marks a stage in the great scheme which has been under way for years —to carry telegraph lines by way of Fort Cudahy and Eagle City down the entire length of the Yukon river to its mouth. The route to Port Simpson is via Vancouver and Ashcroft, thence by the old government line to Quesnelle, thence to a point on the Skeena river, and then down the river to Port Simpson.

Commencing at Dawson and going in a southerly direction work on the line is also being prosecuted. This has been so far accomplished that there remains now only a gap of about eighty miles in the direct connection from Vancouver with Dawson. This gap exists between Hazleton and Telegraph Creek.

There has been telegraph connection all winter between Skagway and Telegraph Creek. This summer the work of completing this gap is being pushed with vigor and it is now predicted that with the advent of winter telegraphic communication with Dawson from Vancouver will be an established fact.

Twenty-four Messages on a Wire.

Some important experiments in connection with a new telegraph system have recently been conducted by the postal engineers between London and Glasgow. The new apparatus is the invention of a French engineer named Mercadier, and by its means it is possible to send twelve separate messages over one wire at the same time. The system is also capable of being duplexed, by which twenty-four separate messages can be sent at one time over a single wire.

This system is very similar to the Delany Multiplex and it depends upon synchronysm for a successful operation.

To Transmit Actual Handwriting.

A number of inventors have from time to time endeavored to devise an apparatus that would telegraphically transmit the actual handwriting or drawing of the person sending the message, but the difficulties to be overcome have up to the present time rendered all attempts futile.

Some systems require four wires, others three, and others again two for the proper operation of a writing telegraph system. Until some inventor devises a system that can be successfully worked on one wire, writing telegraphs will not prove a success.

A young New Yorker claims that he has solved the problem of telephoning without wires. He says that he can make his invention commercially practicable in short order if he can get capital. There are several thousand other New Yorkers who make the same claim. Lack of capital suppresses many enthusiastic electrical inventors.

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The Importance in Telegraphy of Apparently Little Things.*

BY THOMAS D. LOCKWOOD.

The telegraphic circuit in working condition comprises three essential parts, the source to produce the electrical current, the conductor to be traversed by the electrical current, and the station instruments to manifest the electrical current.

Any fault or weakness tending to affect any one of these, necessarily affects the entire circuit. This fact, and the correlated facts that the available working current depends on the margin between the resistance of the circuit, and the resistance of the insulation, and that the latter is variable, the inevitable leakage at each insulator varying with the weather, renders it necessary, to secure the best operative results, that every detail however apparently small, in the construction, arrangement and operation of each of these three factors of the circuit, must be constantly and intelligently cared for.

Let us consider the conductor first. This may be regarded as including the line and office wires. In ninety cases out of a hundred at least, the line wire is iron; and when that is the case the joint is the part mainly to be looked after. If I should lay down a set of conditions about the grade of wire, the tensile strength and the maximum resistance per unit of length, they would be of little or no use to any one having their wire delivered to them, being in the condition of having to take this wire or no wire, or having to accept wires already strung. But it is never too late to attend to joints. After many years of considering and using joints in iron wire, and after careful comparison of the regular twist joint of the United States lineman and the Britannia joint, I feel free to say that I think the twist joint, soldered, is the better of the two all things taken into consideration. For it is not only simple to make, but holds well, is comparatively easy to solder, and leaves no projecting points. The short projecting ends of the Britannia joint would, I think, on our lines be productive of trouble, as tending to hook neighboring wires, thus introducing crosses. But, unquestionably, iron wire joints ought always to be soldered, at least when the wire is first strung; and I believe in a general soldering campaign at intervals say of three years. Such a practice would tend to economy alike in battery power, time in operating, and in profanity.

Copper wire is a thing apart. The twist joint, in my opinion, ought not to be employed with it, nor should copper joints be soldered. There is too great risk of burning the wire. Either the two sleeve MacIntyre joint or the three-wire joint should be employed.

And while it seems a thing that every one stringing copper wire ought to know, it is a fact that every one does not know that in the attachment to insulators of copper line wires, copper tie wires must be used. I once found a man whom I had regarded as an expert, preparing a lot of iron tie wires for some copper lines, and thus arranging a copper-iron voltaic cell with a rainwater exciting solution for each wire on each pole. He realized the state of the case as soon as I suggested it, but he simply had not thought. Learning to think, now as ever, should be an important part of the education and equipment of the practical telegraph man.

In making connection between line and leading in wires, especial care should be taken in making the joints. Here, soldering should be employed. The copper wire in such cases is generally soft, there is usually plenty of time to take the necessary care, and the person doing the work is usually a superior man.

A little detail sometimes carelessly performed is making the holes through which the wires enter. These should always be bored in an upward direction; never in a downward course.

The glass insulator seems to have become standard with us, and in a country generally so dry as is ours, it is probably good enough. I think it is a question, however, whether carefully tested porcelain insulators would not, along the coast, and for some fifty miles inland, be a material improvement. But it is to be understood that when I say porcelain insulators, I do not refer to the porcelain door-knob abominations, which are sometimes—I fear far too frequently—used by constructors of a saving turn of mind.

Referring to the matter of ground wires, I suppose the average wire chief or dispatcher would incline to the opinion that nothing could be more exasperating than a good ground wire at a way station indiscriminately used in season and out of season. It is a thoroughly bad thing without doubt; but I think a bad ground wire under similar environment, and similarly employed is worse, for here a fine adjuster has his righteous indignation aggravated by hearing the working of stations beyond the ground, and if there is but one wire, there is nothing to do but wait until the ground wire fiend remembers what he has done, and takes his earth off.

As to way station ground wires, of course at places of fair size, gas or water pipes are in general attainable, and as a rule, the earth connection can easily, under such conditions, be made fairly good; but even then and also in the making of terminal earth connections, there are "little things" to be looked after if the work is to be done well.

These are: To choose a water pipe in preference to a gas pipe when we can have either; but if we are restricted to a gas pipe to make the connection, if at all possible, on the street side of the meter; to choose in either case a comparatively small pipe in preference to a very large one; to file or scrape the pipe clean and if possible bright, before making the connection; to wind a great deal of copper wire also scraped bright round the pipe thus prepared; to solder the same to use for a connecting conductor, copper wire of as large a size as is attainable, and as is mechanically convenient.

Returning briefly to the way station earth wire where there is no service pipe—an iron bar or pipe may be driven into the earth in some place which

*Read before the convention of the Association of Railway Telegraph Superintendents, at Buffalo, N. Y., June 19, 20, 21, 1901.

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can be relied upon for dampness, and the ground wire carefully attached to this.

I have sometimes seen office wires festooned loosely and carelessly all over the wall, instead of being properly stretched and neatly secured. This is only a little thing, but it proves that the wireman who connected them was a careless and neglectful man, who some day will be sure to cross-connect a main with a local circuit, or perform some like enormity. I have even seen bare wire used on the walls and table of an operating room for office wire. Where but a single wire enters an office, as good a way as any is to screw up porcelain picture-hanging knobs on the wall, and to run the office wire from knob to knob as far as the switchboard or cutout, tacking it the rest of the way. In tacking, a poor wireman will be under a strong temptation to put two wires under one staple, but that particular temptation must always be resisted.

Where a number of circuits enter the office there is no better way to run the insulated office wires than through perforated cleats, anchoring them by a half-hitch at the cleat nearest to the switchboard, or cutout.

Linemen and wiremen as a rule require a considerable amount of instruction. Some need to be told a thing once only; others have a natural aptitude for wire running, and trouble finding; but others again can never learn to work alone, having to be told a thing every time it is to be done, and even then cannot be relied upon to do it properly. It was to such persons that Lewis Carroll referred, in his comment: "It isn't much use teaching chess to a whale, or the language of flowers to a cat."

Such men ought to go into other business. Yet I advocate the constant instruction of good line and wire men, and also of operators for that matter, as new conditions are always coming up to which experience does not apply.

A young and enthusiastic operator naturally likes to have his table present a tasteful appearance, and even spends money from his own all too scantily filled pocket to buy an oilcloth cover for the table on which the instruments are to be placed. The wire man comes and connects the instruments all right, but there is an escape or partial cross in that office which until removed sadly interferes with the working of the line. I think it likely that others here, besides myself, have introduced a trouble by means of a painted or oiled table cover to which the key was screwed; and while the desire to have a neatly arranged office is laudable and to be encouraged, oilcloth covers for instrument tables are to be looked after, and generally discouraged.

This brings us to the consideration of instruments. Beginning with lightning arresters, so-called (although since lightning was never known to be arrested by anything, the term seems to be a misnomer), I think there are still a goodly number in use, of the old-fashioned style wherein a piece of paper or similar poor conductor is placed between two plates having conductive connection with the line and ground respectively. A little thing to be looked out for in these is a fault not infrequently occurring after a lightning storm. The operator sees a bright flash, and hears a sharp crack as of a pistol shot. As his relay is not burned out he thinks that no harm is done. But an escape has appeared on the line which presently is located in his office, and it is then found that a spark has perforated the paper, and that a partial contact has been established through the carbonized edges of the perforation between the line and ground plates. After the flash and crack, of course this should have been looked to.

When a line of telegraph is constructed, reconstructed or rearranged, the battery power is, I suppose, proportioned to the resistance of the line and instruments. It is, however, to be apprehended that cases frequently happen when additional relays are added to the circuit without a corresponding addition to the batteries; and with, of course, a corresponding diminution of current. Again, instances are not wholly unknown, wherein (as when employes have been permitted to use a relay of their own), relays have been introduced whose resistance and number of turns are entirely out of harmony with the relays previously on the line. For example, a line has twenty-five relays of—let us say—100 ohms each; but a new office is opened, and it may be that the operator himself owns a pet relay and is allowed to use it, or perhaps a spare relay is sent from stock. But in either case the relay is one having a resistance—say as high as 200 ohms. Of course this reduces the working average of the line, and if no increase of battery is made, the working capacity of the line may be seriously decreased. For the abnormal increase of circuit resistance weakens the current in all relays, but at the station where the high resistance relay is introduced the weakened current is compensated for by the extra turns of the winding, and thus this particular station obtains an advantage at the expense of all others. Little matters of this kind should not be permitted to occur.

(To be continued.)

Sir Wm. Van Horne in Cuba.

The Cuba Company, of which Sir Wm. Van Horne is president, is engaged in constructing a railway through the eastern part of Cuba. It has no charter to construct a line, but under a special enactment, still in full operation, owners of land are entitled to construct railways upon it without any one's interference. The Cuba Company, therefore, purchased whole estates along the route of its proposed railway, on some of which the rails had already been laid, and so secured the right of way through the provinces of Santiago de Cuba, Puerto Principe and Santa Clara, giving a main line of about 400 miles in length, extending from Santiago to the city of Santa Clara and to Cienfuegos. Sir William Van Horne was formerly president of the Canadian Pacific Railroad, and is an old-time telegrapher.

The French Administration announces that a cable from Tourane (Annam) to Amoy (China) was opened for business after July 1.

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Something More About Wall Street News Methods.

In our issue of June 16 we printed an article entitled "How Wall Street News is Circulated," which gave the modus operandi for the distribution of stock quotations throughout the world. This article explains how the financial news is gathered.

The news bureaus which engage in the process of enlightening the financial district in New York are located almost side by side on Broad street—two of them, friendly rivals. They make a business of sending to brokers, bankers and speculators news of any happening that has a bearing on the money market—events not only of Wall street, but of all the world. They must first gather this news, so they have correspondents scattered over the globe to the remotest spots touched by cable or wire.

It is these bureaus, then, and not the newspapers, upon which Wall street relies for earliest information. Ten minutes after a foreign country calls for a loan, five minutes after an Albany strike is settled, the news bureaus make the facts known to Wall street. Information is sent out, first by a news tape; second, by a system of printed bulletins delivered by boys, and known as "slip service." News tape is operated by an electric typewriting machine, practically the same as a stock tape, but there is a good deal more to it. For news tape is as wide as two newspaper columns, and instead of containing characters unreadable save by the initiated, news tape leaks out of the ticker bearing telegrams of from five to fifty words that can be read as easily as any typewritten correspondence.

The second branch of the news bureau work, "slip service," gives even fuller information than the news tape. Here is an illustration of how the slips, or circulars, which are in reality little newspapers, are produced: It is the day of the panic, May 9. There is a "squeeze" in Northern Pacific and shares are selling for $1,000. In the midst of the financial mêlée, when a great many of the operators in Wall street, according to the market, are insolvent, the manager of J. P. Morgan & Company sends for a representative of the news bureau. "Announce," says Morgan's man, "that deliveries of Northern Pacific will not be enforced to-day." At the same time, some one representing the associated banks also sends for a news bureau reporter: "Announce that we will loan money at the legal rate to the extent of $25,000,000." (At this particular moment money was being loaned at 60 to 80 per cent.) "Announce, too," continues the mouthpiece of the banks, "that we will not call loans made this day—that such loans can stand for a while, at least.

Now, the two news bureau men rush to the nearest 'phones, which have been held open to their offices for the purpose, and repeat the news which has been intrusted to them. As they speak, two editors in the office are writing their very words on pieces of yellow paper. Into pneumatic tubes the editors thrust the yellow sheets and down they shoot to the press room. Here the "copy" is distributed to three linotypers, and half a minute later those messages are being printed on the very tiniest cylinder press in New York.

As they gush forth in cold type, in the form of circulars, boys seize a handful and rush out. There are forty of these Mercuries of the Street, and woe be to the man who is merely "rubbering" around the money quarter—he finds himself considerably "jarred" by the boys who are rushing on without stopping to apologize. The esprit de corps among these boys would shame the staff of an ordinary newspaper.

Each of the forty boys has a certain route, given block or building, and he must deliver a bulletin to each customer of the bureau in that block or building. He enters an office, walks direct to where a file furnished by his bureau is hanging, sticks a bulletin on that file, and then hurries away to the next office. By this time forty bulletins, at least, have been posted, and the news thus given saves the day. The crash of millions is averted. And only ten minutes have passed since Morgan and the associated banks sent for the reporters of the news bureau.

Many brokers repeated the news over their private wires to customers or branch offices all over the country, some houses having as many as thirty-five such wires between Montreal, San Francisco and the Gulf.

As the news furnished by the bureau has a very definite influence on the trading on the floors of the Exchanges, and as each bureau is not for a moment unaware of the enterprise of its competitor, every tick of the clock is as full of importance as a Diamond Jubilee. If one bureau is one minute behind its rival in delivering news for which the "Street" is agog, the telephone of the delinquent gets immediately red in the face, as it were, with the fury of customers.

The most elaborate but least important channel of Wall street news is the financial newspaper. Each news bureau issues a paper, but south of Chambers street there are a score of such financial journals.—Collier's Weekly.

Gold and Stock Life Insurance Association.

The report of the auditing committee of this association for the quarter ending June 29, shows the condition of this company to be as follows:

Balance on hand, last report	$15,415.83
Receipts	2,081.70
Total	$17,497.53
Disbursements	1,299.84
Balance on hand	$16,197.69

F. H. Nicholls, Wm. Shone, M. J. O'Leary, auditing committee.

It is stated in official naval circles at Washington, D. C., that the wireless telegraph system of Lieut.-Col. Reber has been adopted by the Government. It is also claimed that the Reber wireless telegraph system is not an infringement in any way of the Marconi telegraph system, the latter being deemed too expensive for the Government to adopt. Experts on the other hand state that the Reber system clearly infringes the Marconi patents, and as soon as the Government begins to equip war vessels it will have an infringement suit to defend.

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The Telegraph in the Philippines.

The telegraph has been in vogue in the Moros country for over a year. The Signal Corps of the United States service has been stringing wires between garrisoned cities and towns since the beginning of American occupation. At the present writing there are hundreds of miles of wires in the section, and more lines are being added daily. As soon as a new district is opened, the linemen are sent there with native helpers, and the latter dig the holes for the poles, cut the poles from the forests, and in a very short time the wires are put up and the instruments installed. A great many new Signal Corps men have come over from the United States during the last six months and the offices of the telegraph lines are well furnished with trained men.

The telegraph was not used by the Spanish, except in the immediate vicinity of Manila. There are now nearly 1,000 military telegraph offices in the Philippine archipelago, and new ones are being opened constantly. The telegraph lines and poles were at first cut and torn down very often in the Moros section, as in the islands of Luzon and Panay, but the death penalty was administered in a few cases to the Filipino ladrones and rebels who did these things, with the result that the lines are now very seldom molested. In some of the worst places it was necessary for the guards to shoot at all natives who were acting suspiciously about the lines, but usually the shooting was in the air, for the purpose of terrifying the natives. This scheme succeeded well, and nowadays it is seldom that the lines are cut or the poles torn down.

The telegraph is used considerably in the Moros section by the mining corporations and the Filipino business houses. The Government established the lines for military purposes, but the private concerns can use the wires upon showing that the business is legitimate and upon paying the proper price which the Government has established for private messages. Many of the messages go over the lines in the native languages and some of the American operators are often puzzled over the inscriptions. Some of the mining concerns have lately combined with the proprietors of the cocoanut lands and sugar plantation owners for the purpose of putting in private telegraph lines. There is a very good demand for fittings, such as wire, instruments and all the necessary furnishings for telegraph lines.

Western Union Stock.

The stock of the Western Union Telegraph Co. is steadily retrieving its former position in the estimation of investors. The shares have been within a few points of par recently, which indicates that they are gradually rising to a level commensurate with the dividend paid. It is now understood that the spreading of the country telephone service, so much dreaded when first inaugurated, has furthered, rather than retarded, the telegraph business. Rural districts having the telephone use it to communicate with telegraph offices, thus creating traffic for the latter where none had existed hitherto.

Publications.

"PHILLIPS' CODE," by Walter P. Phillips, 9th edition, 69 pages. This unique and efficient guide for the transmission of press reports still maintains its great popularity; bound in flexible leather; price, $1.

"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; price, $1, reduced from $1.50.

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NEW YORK, July 16, 1901.

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A Lesson for Chief Operators.

A gentleman well versed in telegraph affairs writes as to the effect that it is nothing less than a calamity to the telegraph profession that a man like W. R. Holligan, who formerly and for so many years successfully managed the main office of the Western Union Telegraph Company at Chicago, Ill., has been permitted to leave the telegraph service. He stated that while it was perhaps an easy matter to name a successor to Mr. Holligan, it would be difficult to fill his place in all that that term implies. Few men measure up to the standard required for the successful handling of large bodies of operators, and of getting from them the maximum amount of work, attributes of character possessed by Mr. Holligan in a remarkable degree. Many men, doubtless there are, who imagine themselves competent for high executive positions of this kind, but men of Mr. Holligan's calibre in charge of large telegraph offices can be numbered on the fingers.

The regret at this departure from the profession will be keenly felt by hundreds of telegraphers, who at one time or another worked for Mr. Holligan and have nothing but words of praise for his fairness and good judgment, which were always manifest while exercising the authority of the official positions which he held.

But this article is not intended in eulogy of Mr. Holligan, although it may bestow a tribute well deserved by that gentleman. He has passed from the scene, yet has left an indelible imprint in the telegraph service, a record that may be well used as a text and held up as an example.

The importance of the position of chief operator in a great telegraph office cannot be overestimated, for to the executive ability, tact, judgment and educatory force of such a head, depends in large measure the welfare of the office itself, as well as the personal development and betterment of the individual operator, provided, of course, he has the right stuff in him. For it is in this practical school that the wise chief by the exercise of proper discipline and careful, painstaking methods can elevate the esprit de corps of his force, increase its efficiency, while at the same time effectually training those under his management in the direction for promotion to more responsible fields of telegraphic endeavor.

No appointment to the office of chief operator ought to be made through favoritism, or through any influence that will prejudice the best interests, not only of the telegraph companies, but of the operating staff, which is, or should be, the fundamental force of any telegraph company. No matter what the claim of the individual may be, or how acquired, or under what obligation a company may consider itself to be to any aspirant for office, only merit should govern the appointment to this responsible office. And this is equally true respecting all managerial appointments. Not only do the best interests of the companies demand this, but the moral obligation to the operating staff likewise should inspire such action.

Then eliminate all favoritism in the management of the operating department. It is out of place there; merit alone should be rewarded.

It is natural that employees should respect their superiors, but those superiors must show a worthiness for this respect or it is withheld. We have never yet heard of a case where a chief operator was severely criticized because he was too strict. Discipline is always appreciated by the force; favoritism never, for it has proved the ruin of many an otherwise good chief operator.

Favoritism quicker than anything else will destroy the discipline of an office, beget ill feeling and stir up insubordination. As soon as it once becomes known among favored members of a force that a chief operator can be "worked," or that he can be persuaded to favor them, just so soon does that official lose the respect of his entire staff. And this when once lost it is a work of years to regain. The aim, therefore, of a chief operator always ought to be to act in a perfectly fair and just manner to all under him; to be a strict disciplinarian; to command respect, and to be a gentleman in his office as well as out of it.

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If a chief operator is other than what is here indicated the effect on his staff is detrimental to the service. The men under such conditions naturally would do as little work as possible and in every manner show their disrespect to their superior and disgust of the telegraph service in general. This is the natural sequence where unfairness prevails in dealing with the men, and there are too many such offices to be found in the telegraph service of to-day.

Curious Libel Suit.

Preliminary steps have been taken in England in a libel suit which is remarkable even in that land of strange libel suits. About three weeks ago Septimus Parsonage and a co-director were jailed for contempt of court in having fraudulently obtained 60,000 proxies in order to secure the voluntary instead of the compulsory winding up of their company. In sending the news over the country the Government telegraph department telegraphed "pounds" instead of "proxies."

The imprisoned Parsonage says he was injured by the base accusation that he had stolen £60,000, and immediately demanded substantial damages from forty newspapers, with the option of standing libel suits.

The newspapers turned to the Government telegraph department, which, while deploring the blunder, pointed out the special act of Parliament under which the department was exempt from all liability. The newspapers appealed to Parsonage, but he was obdurate and demanded damages or said he would go to law.

The strangest part of the case now comes. Parsonage has also begun suit against the persons who sent the news telegrams. He argues that although the message was accurate yet they employed the Government to transmit it, thus making the Government their agent and one of the first axioms of law is that principals are bound by the acts of their agents. The journalistic world is keenly interested in the case and the newspapers will combine to fight it, but the vagaries of British juries, especially in newspaper libel suits, make the outcome dubious.

A Non-Desirable Telegraph Field.

Telegraph operators in South Africa, particularly in the Orange River Colony and in the Transvaal, complain of the inadequate rate of wages paid them for their services. While these sums frequently vary in amount from £200 to £400, the equivalent of $1,000 and $2,000, it is said that the cost of living is so high in those countries that even these apparently liberal payments are insufficient to make both ends meet. Many operators who were induced to go out to South Africa from England and America, tempted by high rates of pay, would gladly return and accept employment at home at their old salaries. A warning note has been raised against accepting service in South Africa by those who are already there.

A subscription to TELEGRAPH AGE is regarded as a good investment.

First Telegraph Line Into Chicago.

An orator, a politician, an organizer, an inventor, an electrical expert, a carpenter, a lineman, a telegraph operator, and a teamster, all in one, was what Dr. S. D. Cushman had to be when in 1847 he strung the first telegraph wire into Chicago, and then extended it northwards towards Milwaukee.

Dr. Cushman, who has reached the venerable age of eighty-two years, now lives in Chicago. He was at that time in the employ of the Erie and Michigan Telegraph Company, which was extending a line west from Philadelphia, through Pennsylvania, Ohio, Indiana, Illinois, and Wisconsin. Dr. Cushman's construction squad moved in a camping wagon. The farmers along the way contributed the telegraph poles freely in most cases, being much pleased that the much talked of telegraph line was passing so near to their farms. Some of the poles the farmers brought were logs two or three feet thick, while others were as slender and graceful as bamboo fishing poles, and the telegraph linemen would often have to go out and select their own trees and trim them into proper shape.

At every town that was reached by Dr. Cushman and his party a campaign of education would first have to be inaugurated. The linemen would go around the town and summon the citizens and the farmers who lived in the vicinity to attend a meeting that night in the town hall. Here Dr. Cushman would have two telegraph instruments rigged up at either end of the hall and connected by wire so that messages could be transmitted from one to the other. He would explain in detail the construction of the mysterious instruments, and then send messages from one end of the hall to the other and back again to assure the people that the telegraph would do all he said it would. After this was done he would organize a committee to solicit subscriptions from the townspeople to raise a fund to give as a bonus to the company for carrying the line through that particular town.

Dr. Cushman said that the people of the various towns were skeptical in regard to the new invention. Most of them looked upon it as a sort of amusing toy that might work for a little while at short distances, but which would not prove of any great practical value. Chicago itself was exceedingly slow in taking action for bringing it into the city.

For a long time the line abruptly ended at a little town in Indiana, as there was no more money in sight to bring it any farther. Finally the bonus was raised in Chicago and the wire brought in. It ran along close to the lake shore, the telegraph office being near the courthouse. Dr. Cushman says his recollections of Chicago as he first saw it are that it was a dismal, gloomy sort of a place, with bottomless mud and muck everywhere.

The line was extended from Chicago north through Evanston, or, rather, what is Evanston today, Waukegan, Racine, and finally Milwaukee. After a few years another wire was put in operation between Chicago and Milwaukee, but it was taken down in a few months on the orders of one of the superintendents of the company, who

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said there was not enough business between the two cities to justify two wires.

Dr. Cushman claims to have invented the telephone away back in 1851 and has had several hard legal battles in the United States courts with the Bell company over the validity of patents. Dr. Cushman also experimented successfully many years ago with wireless telegraphy and has invented numerous electrical and mechanical devices.

Compulsory Overtime in England.

The United States is not the only country where extra service after regular hours is declared to be a bugbear. In the London, Eng., central telegraph office much fault is found with the administration on account of not being able to relieve the men when off duty. The following letter which appeared in the last issue of The Telegraph Chronicles, London, will prove to the Americans that in other countries there exist peculiar telegraph tricks as well as in the United States.

"I should like to call your attention to the increasing tendency of the department to draw on compulsory overtime after 8 P. M., operators employed in the central telegraph office, whose own duty already covers ten hours, i. e., 10 A. M. till 8 P. M. Except upon former isolated occasions, this inconvenient practice is but new born; in fact, since the alterations of the night duty. Now an operator performing 10 A. M. till 8 P. M. duty is never certain of getting away from the office at the expiration thereof, in spite of the fact that he has already done a long day's work. That the overtime after 8 P. M. is unpopular is evidenced by the fact that the full complement of officers required is seldom, if ever, obtained voluntarily, and this result follows—that many operators who, from point of principle or other reasons best known to themselves, never volunteer for overtime, are forced to take these fag ends, so to speak, whether they will or no. Little notice has been taken up to the present of this new bugbear to TS., (which is the telegraph call for the London main office by the Telegraph Association) and it is a pity, because it may be reasonably concluded that, under pressure, the department could not possibly maintain its position in this respect. Was not the ten-hour day itself, and, as a fact, is it not so still, the subject of a grievance on account of its length? Its abolition has been sought upon previous occasions by the Telegraph Association, but now, in addition to this inconvenience, the hours are to be compulsorily extended at the will of the department. I myself, after unsuccessful protests, have been obliged to financially induce a fellow operator to stay on for me in order that I might keep appointments made while on this duty. Very bizarre, is it not, to have to pay to get away at the legal expiration of a duty, but nevertheless a fact."

The Dominion Government has decided to establish the Marconi system of telegraph in the gulf of St. Lawrence. D. H. Keeley, superintendent of Government telegraphs, has been ordered to install a station during the present expedition of the chartered cable steamer Tyrian.

To the Memory of Mortimer D. Shaw.

The accompanying engraving shows the monument that has been erected lately at Sumner, Ill., to the memory of the late Mortimer D. Shaw, the well known old-time telegrapher of St. Louis, Mo. The erection of this shaft was made possible by the contributions of telegraphers, to whom the memory of Shaw as the champion in the cause of telegraphic labor, an agitation which culminated in the memorable telegraphic strike on July 19, 1883, endeared



THE MORTIMER D. SHAW MONUMENT.

him to so many. The monument is of light colored granite, eight feet in height, and was placed in position on May 23, last. It bears this inscription: "In Memoriam. Mortimer D. Shaw, Dec. 21, 1853; July 13, 1900. Resting in Peace." On the base appear the words: "Erected by telegraphers of the United States of America."

Admonishing the Sounder.

It was after hours at the Exchange, the men had returned to the downstairs office, and here and there could be heard the stray clicks on sounders before they were cut out. The room had been given over for the purposes of cleaning to the care of colored porters, one of whom, approaching a clicking sounder, watched and listened to it attentively for some time with a face expressive of great curiosity, when at length bending over the instrument, he said: "Lawd, but you'se makin' lots o' fuss! Why, good gracious, all ob dem men has gone down stairs; yeth, they has all gone down stairs. You'd better wait till to-morrow mornin'. Den dey'se all comin' back 'bout nine o'clock." And as he spoke the wire seemed to understand, for it became quiet. The darkey smiled a grin of satisfaction, stroked his gray whiskers and turned away to resume his labors in another part of the room. Wonderful miracle! But plainly and simply, the wire had been cut out.

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Andrew Carnegie and the Telegraph.

If some strange combination of circumstances should ever make it necessary for Andrew Carnegie, the millionaire iron king, to begin life over again and to start from the foot of the ladder, there is no doubt that the doughty little Scotchman would carve a way for himself. To prove this an incident which occurred some months ago at Atlantic City, N. J., where Mr. Carnegie had gone to take part in the conferences at which differences between Mr. Frick and Mr. Carnegie, that at one time threatened to result in a mighty legal battle, were amicably settled, may be related. While Mr. Carnegie was sojourning at the Hotel Brighton he was, naturally, the most observed guest in the hotel. He was also more in demand than any person in the house. Reporters and other individuals filled the corridors during his stay and the hotel clerks were almost driven to distraction by the innumerable "requests" to see Mr. Carnegie. Mr. Carnegie is without formality in speech or action. While at the hotel he engaged the telegraph operator, Stanislaus Miller, in conversation. "Let me have a pen," he said, and taking up two or three telegraph blanks he began to write. The operator thought he was writing messages to be sent, but he was astonished when the telegrams were handed him to find that Mr. Carnegie had copied messages coming over the wire. Noticing his surprise, Mr. Carnegie said:

"Oh, that was formerly my employment; I was just trying my hand to see if I was in trim. That's good copy, is it not?"

The operator said that it would pass muster, and added that he thought if Mr. Carnegie ever had to start life over again he could earn a living at the business.

Mr. Carnegie smiled good naturedly and said he thought so, too. Just then the operator was called over the wire, there being several messages for guests in the hotel. Mr. Carnegie took receiving blanks and he "took" the messages as they came in, doing the work rapidly and well.

An Apt Catch Line.

When manuscripts are sent to the composing room by the editors in newspaper offices, a catchline is placed at the top of each sheet for purposes of identity, that is, on a subway article, "subway;" on a political article "Roosevelt" or "Depew," as the case may be. In one office the other day the word "gas" was written at the top of an item dealing with the latest expense to householders in the evolution of the gas monopoly. "That reminds me," remarked a copy reader, "of my days on the telegraph editor's desk. The telegraph operator had the habit of finding out from the other end of the line how long a certain dispatch was going to be, and he would put the number of words at the top of the first page. I came to think sometimes, when I saw a catchline at the top, '3,500 words,' that it was the aptest characterization anybody could invent for the matter which followed."

Subscribe for TELEGRAPH AGE, $1.50 per year.

Selections from the Mail.

Mr. S. J. Bloodworth, an old-time telegrapher, and now associated with the Cuba Company, builders of a railroad on the island of that name, in a recent letter, dated at Ciego de Avila, writes as follows:

I dare say there are to-day as proficient operators in service as there were twenty years ago, but the typewriting machine has made it possible to hide many faults—if not sins.

I do not mean to imply that the standard of efficiency has changed or deteriorated, but returning after an absence of fifteen years to the telegraphic field, I think I have discovered that there is a want of that pride of correctness in transmission (sending) that was so visibly patent with the old-time operator. There is no excuse with other than paralytics to make a six spot for the "P;" nor an indefinite number of spots for the figures six and eight. It is an expression of inaptitude, want of application, and consequently, from the practical point of view, want of ability. Such operators were intended for other vocations.

There is one characteristic, however, that clings like an hereditary affliction to the operator. With all his good intentions to subscribe "next pay day" for a paper devoted to his interests, he continues to read his neighbor's copy, and sometimes without malice or forethought "swipes it!" Latterly (and I must confess it) I have been guilty on the first charge, and can find no defense or extenuating fact therefor. The facility with which I could find a TELEGRAPH AGE "laying around" developed in me that old malady of letting others pay for my reading matter. But fortunately it requires no knowledge of therapeutics to eradicate the malady, it being a disease that is tractable and quickly amenable to a small dose of thought tinctured with honesty. From a publishers' standpoint, as well as a subscribers,' it is dishonest for a person to continuously depend upon another's paper for information. You will, therefore, please find the amount of my subscription herewith enclosed.

I am pleased to see the great improvement you have made in TELEGRAPH AGE since the eighties. Apart from the general information it gives of whatever affects the social side of the fraternity, the technical and mechanical knowledge of applied electricity so lucidly analyzed and illustrated therein makes it a necessity to every one connected with the telegraph or other kindred pursuits.

The American District Telegraph Company, recently incorporated at Spokane, Wash., with a capital of $100,000, and empowered to do business in the States of Washington and Oregon, is rapidly extending its service within those States. The officers, all well-known Western Union men, are as follows: H. D. Bennett, of Columbus, O., president; I. McMichael and J. Levin, both of Minneapolis, Minn., vice-president and treasurer, respectively. The manager of the company is A. D. Campbell, who is also the local manager of the Western Union Telegraph Company at Spokane.

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The Telegraph Office.

The innumerable tiny drops of water, intermingling, create an irresistible power, as their united forces form an imposing river.

The everlasting clicking of the many instruments in a telegraph office, each contributing its own gentle musical tick, to the general combine, appears to the uninitiated as they step from the busy street into the office like unto the roaring of a coming tornado, and their great amazement is the fact, that anything intelligible can be distinguished in such a bedlam. The different "knights of the key," as they sit quietly in their designated places appear to be in a state of absolute equanimity in the horrid din, as they gracefully turn off message upon message, each containing matters of importance to those for whom they are intended; aye a lifetime of misery for many, in the few words indited. Some dear treasure of a household gone forever. A cloud of gloom overspreads a happy family, at the unexpected announcement of the sudden demise of one of its absent members. The operator himself, although accustomed to the reception of great numbers of such heart-rending communications, often feels a pang of sorrow when he knows of the misery the few simple words will occasion, and can but wish that some other hand than his might copy the misery contained in the relentless tale of the remorseless clicker. However, the tales of the telegraph are not all of a sad nature. Many hearts are made glad by joyful news. By its wings of lightning they know that all are well at home. Many, wallowing in the slough of despondency, with a pauper's doom staring them in the face, almost rendering a meditation of suicide, have suddenly been elevated to the highest pinnacle of exuberant joyfulness, at the reception of glad intelligence contained in a few short words flashed over the wire. Being myself a veteran, having grown gray in the service, I often indulge in a retrospective view and meditate upon the happiness and woe which I, as a medium, have been instrumental in causing, and as particular messages flit through my mind I can but reflect that I have filled an humble niche in the world's events. I being only one of the many thousands engaged in the occupation, what a myriad of volumes filled with weal and woe have the fraternity in the aggregate written.

A large telegraph office is interesting even to the one who may have spent the most of his life in it. Each day is a book of itself, finished and delivered to the world of patrons. Each operator has his own wire to attend to and while paying attention to that is perfectly oblivious to the clickings of other instruments.

While the chief is busy testing wires and troubled by the sonorous cries of the different operators to answer "no" on the other side, or "Dallas wants to double up," and "Galveston says pass New Orleans," the imperturbable manipulator of the key sits with a look of contentment upon his face, such, perhaps, as the Lymners gave the beloved disciples, rushing some "ham" at the other end, or perhaps getting rushed himself. It's all the same to him, as he claims the key was made to brake with.

Perhaps in a few moments this serene look will have disappeared, when the manager, who is the boss in all matters, calls his attention to a "bulled" message, and intimates that such work cannot be tolerated and must not occur again. This little episode makes the operator unusually careful for a little while, but he soon regains his serenity and appears as innocent as an unshorn lamb.

The operator generally feels solicitous when the manager sits poring over piles of back date business, for he has an idea that something may be wrong, and might come his way. Especially is this the case with young and "flip" operators, who experience such ecstatic delight in rushing everybody regardless of the correctness of the matter being turned out. The staid old manipulator, whom many winters have rendered hoary headed, having gotten accustomed to such affairs long since, isn't much troubled, for he is aware that he has been as careful as possible, and if there is a "bull" he may wiggle out of it and place it upon the shoulders of the "ham" at the other end. The messenger boys, hurrying and scurrying around, are about the only animated beings to be seen, and although so lithe and active within the confines of the office seem to lose all their energy after reaching the sidewalk with a long list of "pink" telegrams. To the operator the hour at 5 P. M. is the most welcome of the twenty-four, for his nine hours of constant work, without intermission, are over and he is much rejoiced to witness the night force coming in on time to relieve him.

The night man (so says an old Methuselah, who persists in calling himself the kid of the Houston force) has an utter abhorrence of the hour of 5 P. M., for he knows there is a roast (as the telegrapher styles hard work) ahead of him, away into the wee sma' hours of the night.

All in all, the telegrapher works hard and his hours of labors are not too long when he is not called upon to do extra work. This extra work is an abomination to the old timer, who did enough of it in his younger days to dim his eyes all too soon.

It is to be hoped that in "the sweet by and by," when we cross the river the old timers will have an everlasting convention and salute each other with their hearty "73."

OLD TIMER IN THE HOUSTON POST.

WHY DO THEY DO SUCH THINGS?—An observant European correspondent writes to the Electrical World and Engineer: "One afternoon about a fortnight ago a shower came down in Berlin, and although there was not the slightest indication of lightning or thunder the whole telephone service of Berlin was suspended for several hours. It was the most ridiculous piece of officialism that I ever heard of. It seems that the minute a drop of rain falls they shut up the telephone exchanges and all hands go for beer. They don't do it anywhere except under the administration of the Reichpost, there being no such nonsense in Bavaria or Wurtemburg."

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You can't afford to be without TELEGRAPH AGE.

A Telegraph Yarn.

A veteran telegrapher in Washington, D. C., gave a Washington Times reporter a good story recently; it is one without a moral, but will bear repeating notwithstanding. He said:

"The field of telegraphy was more inviting twenty-five years ago than it is to-day. I started in the business when I was ten years old, and made more money than many superintendents of branch offices do now. I remember that when I was in Woonsocket, at the age of eleven, I made more than the combined salaries of the mayor and chief of police. My salary was $75 a month, and during the three weeks the country was in doubt concerning the Hayes-Tilden election I more than trebled the amount. I was working for the old Franklin Telegraph Company. It was the New England division of the Atlantic and Pacific Company. The Western Union used to be allowed to send certain messages over our wires, and the operators got extra pay for handling their work.

"After a while I was sent to Providence, R. I., and as I was fair at receiving and was a fast and legible writer for a youngster, I was soon detailed on newspaper work. The two rival papers in the town were the Star and the Journal. It was before the day of the great press associations, although the business of getting news over the wire was gradually becoming systematized. The Journal got its report over the Western Union, and the Star patronized the Franklin Telegraph Company. Competition between the two papers was very keen, for even in those days the readers appreciated the value of exclusive news.

"I soon got into the stride and caught the fever. It hurt me just as badly to see the Star beaten as it did the managing editor, and I crowed just as loudly over a scoop as a cub reporter. The facilities for gathering the news were about equal, and about the only disadvantage we labored under was the loss of wires on account of a storm. That was where the Western Union had us. Their line ran alongside of the railroads, and if the wires were down they could send their men out on trains and hand cars and make repairs in short order. The Franklin ran along the New England turnpikes and the linemen had to drive in buggies and put up the wires. We could only cover about thirty miles a day, where the opposition could get over a hundred. In case of a sleet along the coast, the operators would have to leave their instruments and go out on the line to assist in the repairs. Luckily for us, such things did not happen more than two or three times a year.

"One summer afternoon in 1877 a brief but destructive storm swept over New England. As a result, the wires of both companies were down. All the men in our office except three, including myself, went out to help in the repairs. I was left in the hope that we might establish communications so that the Star could get at least a portion of the news of the day. I went home to supper and came back and waited for developments. The wire was absolutely dead, and I could not arouse the nearest operator. A messenger came over from the Star building, telling me that they would try to get along if we could only give them a story on the storm. That was, of course, the news of the day. It was before the time of the up-to-date signal service now maintained by the weather bureau, and the masters of the ships depended on the papers for storm signals and prophecies concerning the weather.

"Along about ten o'clock I stepped out of the office on the street. It was absolutely quiet. It was that sultry stillness that follows a summer storm. To appreciate the utter silence that reigns over a New England town it is only necessary to remember that when the nine o'clock bells ring everybody goes home and goes to bed—or at least they did in those days. The only sound that broke the deep stillness was the clicking of a telegraph instrument up in the third floor of the Western Union building. They had picked up their New York wire and were receiving news for the Journal.

"The Franklin Telegraph Company's offices were located in a triangular building, situated at the intersection of two of the main streets. The Western Union building was across the street, still further separated by the wide plot caused by the intersection of the two streets. The instrument was fully 150 feet away, and up in the top of the building, but I heard it distinctly. They had evidently been sending for some time for they were then giving the last of the markets.

"I made up my mind that I would at least take their report of the storm, which I was pretty certain would come in early. I went back up to the office and got a pad of writing paper. I told the messenger boy in the office to come down and let me know at any time a wire was found. I also told him to come to me every half hour and get copy. I then went down on the sidewalk and sat in a chair at the side of our building where the light from two windows shone brightly. I got there just as the report of the storm was starting. I could hear the instrument as plainly as if I had been right in the room with it. The leverage of the sounder had been increased so that I could 'read' every word with the greatest ease.

"The two papers got about a 7,000 word telegraphic report, and it did not come so fast that it could not be taken down without difficulty in long hand. I caught the storm story without any trouble. It was a good one, and I was as pleased as could be that my paper would not get left on it. The messenger boy came down and took the copy up to the Star every half hour. He was not an operator, and did not have the slightest idea what I was doing sitting out there on the sidewalk writing. If he had any thought at all, it must have been that I was faking telegrams. But he was a discreet youth, about nine years old, and he said nothing.

"When I got through with the storm story, everything was coming along so easily that I thought I would take the rest of the report. We had not got any wire as yet, and the fun of the thing struck me so that I decided to go on with the news pilfering. Strange to relate, not a single vehicle rolled along the pavement, and I did not have a break in my story. Several pedestrians passed

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by, but the spectacle of a boy sitting in a chair on the sidewalk was not sufficiently remarkable to attract unusual attention. If they had understood the code, things might have been different. I kept the things up without interruption from any one, and stayed out until 'thirty' came over the wire, about a quarter past two. I had written about 4,500 words, a little more than half the report, and certainly the cream of the news.

"I said nothing as to where I had been when I went back to the office. Nothing was doing on our line that night, and in fact we did not get a working wire until nine the next morning. I went home patting myself on the back on the little scheme I had engineered. I did not know enough about the newspaper business to realize that there would be all kinds of explanations to make.

"When I got down to the office late that day, I was told to step into the office of the manager. He looked me over with a show of exceeding sternness. Somehow or other I had expected a different reception.

"'I see that you were not satisfied with loafing last night,' he said.

"I looked sheepish and said nothing. He then showed me two letters. The first was from the managing editor of the Journal to the managing editor of the Star, and it ran about as follows:

"'I see that your report of yesterday's telegraphic news in your issue of this morning is a verbatim copy of that which appears in our paper. I learn that you had no wires working. Please explain this.'

"The other letter was from the managing editor of the Star to the manager of our office. He merely enclosed the other letter, and asked for an explanation.

"'Well, what have you got to say?' asked my superior.

"I saw that the whole thing was up to me, and I resolved to make a clean breast of it. I told the whole story, and he listened without a word.

"'A bad mess,' he said, when I had concluded my narrative. 'Didn't you know that the similarity of the two reports would be noticed at once?'

"I confessed that I hadn't thought of that. Then I made a bold attempt at justification.

"'I don't think I did anything wrong,' I said. 'It would be different if I had tapped their wire and cut in on their report. But I got it out of the air. It was any one's property. It was as free as the atmosphere. I couldn't help hearing it.'

"'That is true enough,' said the manager, 'but it doesn't help our explanation.'

"'There is no need of an explanation,' I blurted out. 'No one knows anything about it but you and I. We can just stand pat, and let them find the leak if they can. We have done nothing illegal in taking their report. They had no business to leave the window open and key up the sounder to so loud a tone.'

"'I guess you're right after all. We will make an explanation to the Star, and we can trust them to keep the thing quiet. Go over there and tell the managing editor the whole story.'

"I went over to the Star office and told my story. The managing editor laughed at my greenness in overlooking the fact that the similarity of the two reports would be noticed, but he took my suggestion and wrote the Journal to the following effect:

"'In replying to your inquiry as to how we got this morning's telegraphic report, I beg leave to state that we received it from the Franklin Telegraph Company. If you desire any further information you may appeal to them.'"

Telegraph in the Yukon.

The Dominion Government is building a telegraph line from Fort Simpson, at the south entrance from Portland canal, which separates British Columbia from Alaska, inland 180 miles to Hazleton, where it joins the Dawson-Ashcroft line. J. B. Charleson, superintendent of the northern telegraph construction, reported, May 12, that 90 miles of the line had been constructed, and that the whole work would be completed by July 15. The small gap in the Dawson-Ashcroft line, on the Atlin-Ashcroft section of the line, will be completed about the same time. When these portions of line are completed there will be in operation an all Canadian telegraph route from Ashcroft, B. C., to Dawson, with a branch of 180 miles to the coast at Fort Simpson. The length of the different sections of the main line, as stated by the minister of public works in the House of Commons, May 29, will be: Ashcroft to Atlin, about 1,250 miles; Atlin to Tagish, 75 miles; Tagish to Dawson, 518 miles; total, 1,843 miles.

Speaking of the revenue of the lines completed up to Dec. 31, 1900, the Minister of Public Works said 41,816 messages had been sent, and the revenue amounted to $107,712. The average number of messages per month was 2,681 and the monthly revenue was $7,302.87. He added that the cost of the line so far had been $430,000, while the total estimated cost was $460,000.

Betting Scandal in England.

A great betting scandal has been discovered recently in the Government telegraph department. The operators in the central office in London have been in league with others in suburban and provincial offices for swindling bookmakers. The methods adopted have been ingenious, elaborate and successful and included a resort to forgery. About a score of men have been suspended, preliminary to their dismissal and an exhaustive inquiry is now proceeding with a view to ascertaining the exact extent of the evil. The present intention is to institute criminal proceedings against the ringleaders.

The Postal Telegraph-Cable Company is making rapid progress in stringing its wires over the Pacific Northwest section. A line from Denver, Col., to Salt Lake City, Utah, and to Spokane, Wash., is in course of construction, the first portion being nearly completed. A line between Spokane and Portland, Ore., will be finished by next winter.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

SPRINGFIELD, MO., WESTERN UNION.

This is the fourth largest office in Missouri and does an immense relay business for Indian Territory, Arkansas and Missouri points, handling the fruit messages from northern Arkansas. We have never seen anything lately about our office in THE AGE, which we read with much interest. The personnel of this office is as follows: E. A. Rippey, manager; chief operator, L. E. Hedge; night chief, G. R. Alger; operators, S. A. Mulroy, Geo. H. Bagot, Will Martyn, Phil T. Martyn, L. A. Garrett, C. B. Dubbs, R. A. Hawk, Geo. Schmidt, A. L. Goodwillie, O. C. Cook and J. Trent; clerk, Miss Nona Dwyer, besides a number of blue coats. Mr. Rippey has just recently been appointed to the position of manager and is the most efficient official manager Springfield ever had.

KANSAS CITY, MO., POSTAL.

Manager Will Emerson, of the Lamar, Col., office visited us lately.

Manager Roy Fike, of Peabody, Kas., is spending a vacation in California.

Business is good here and the extra men are making full time.

On the St. Louis and the Chicago bonus wires, Messrs. Summers, Edwards, Tobin and McConaha are doing good work, averaging between 800 and 900 messages per day each wire.

Mr. Ernest Kaapcke has been assigned to the early morning trick.

Mr. P. W. Kenefick, formerly of the Postal, Chicago, is working a night trick.

Mr. Paul Joyner, late of Atlanta, Ga., has been placed on the regular force.

Mr. Young is spending a vacation in Kansas. Night Chief Falk was confined to his home by sickness several days recently. Mr. Thornton, formerly of the Postal here, is now with Swift & Co., this city. A swimming club is the latest out. Chief Operator Rommell and some of the boys on every Monday night hie themselves to Fairmount Park for a dip in the lake.

INDIANAPOLIS, IND., WESTERN UNION.

The Western Union Baseball Club made a visit to Cincinnati June 23, played the Cincinnati boys, losing the game by a score of 9 to 13.

Cincinnati boys have accepted a challenge to play here July 21. Manager Kurz is very busy arranging for the occasion. Neither time nor expense will be spared to make the visit an enjoyable one.

Those who attended the Cincinnati game report having been treated royally.

Mr. James M. Sanders, for many years connected with the clock department in this district, with headquarters in this city, left with his family for El Paso, Tex., where he has a position awaiting him. Mr. Sanders is a bright young man, and we shall be disappointed if he is not heard from in his new field of labor.

The burning of the West Baden hotel necessitated the sending of an additional force of telegraphers there. Arthur Hamilton went from this office and during the week spent there reports having had plenty to do.

H. W. Thorpe, of Kokomo, has been assigned to a regular position in this office.

Traffic Chief J. W. Price was on sick list for a day or so, but we are pleased to say he is again on duty.

ST. JOSEPH, MO., WESTERN UNION.

This is the fourteenth year for Manager Rodney Smith and Chief Operator G. W. Hale in this office. A heavy city business is done here on account of the packing houses and the stock yards business, which is increasing rapidly.

The rest of the force is made up as follows: W. H. Heyser, night chief; Mrs. Nolia B. Mullen, on Chicago; Ross G. Wheaton, Kansas City; Joseph Chrissinger, Omaha; T. J. Mullen, Arthur L. Stock and Leo Busse, way wires. D. C. Thompson; cashier; Miss Anna A. Fleming, stenographer; L. H. Gramer, Ivan Wood and Wilber Best, clerks.

Mr. Albert Lamora is the manager, and Mr. Otho K. Morrison, operator, at the stock yards.

Messrs. E. Kendricks and R. L. Mallott are at the Hammond Packing Company; Mrs. Mary Heyser, at Hotel Metropole; Messrs. G. G. Bowers and H. T. Reneau, at Nelson, Morris & Co. Packing Company; Mr. Robert Grief, at the Swift & Co. packing house, and Messrs. Geo. H. Imbrie, A. J. Broderick and Wm. T. Young, The Associated Press.

PHILADELPHIA, PA., POSTAL.

The intense heat, through which we have just passed was almost unbearable, and, that no one was carried out of the place overcome was next to a miracle. As it was, almost everybody without exception abandoned all ideas of appearing in a "dressed up" condition and discarded every piece

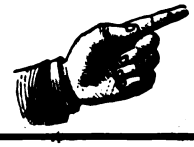
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ELECTRICAL SPECIALTIES EXPERIMENTAL WORK

ROGERS ELECTRICAL WORKS

TELEPHONE 5992 CORTLANDT 53 DEY STREET, NEW YORK

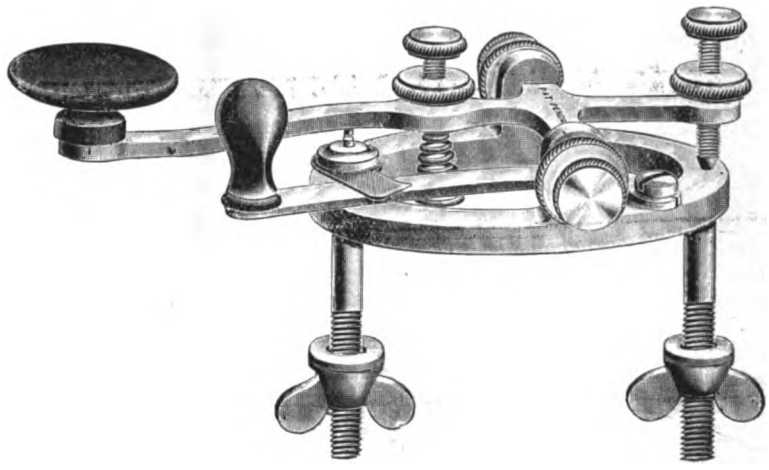
Rogers Standard Telegraph Key

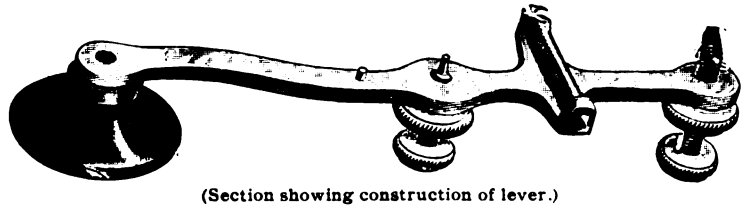


PRICES:

Plain, with Legs . . . $1.00
Nickel Plated, with Legs 1.25

Prices quoted on Special Keys





(Section showing construction of lever.)

IN presenting this Telegraph Key to the public, we desire to call attention to the new feature embodied in the construction of same. The frame is made of the finest composition used in the manufacture of electrical instruments. The circuit-closing lever is made of sheet spring brass; the key lip is of spring German silver; the legs are half-hard drawn rod brass; all screws and lock nuts are of half-hard drawn rod brass. The lever is made of stamped cold-rolled sheet steel; the ears of cross-arm of lever are turned downward to form receptacles, which are drilled, and a tool steel trunnion with hardened points is forced into its place with hydrostatic pressure of 100 lbs. to the square inch, which insures its not becoming loose. The lever is then given a high polish and nickel plated. The contact points are of No. 14 XXV Platinum.

It will be readily seen that with the slightest pressure of the operator's finger at each pulsation, there is produced (as well as a vertical motion) an oscillating motion of about a 3/1000 part of an inch, which gives the contact points a sliding motion and assures the operator that one point is keeping the other clean by this slight friction.

This Key is looked upon by practical operators as being second to none on the market. Each and every Key is fully guaranteed, and tried and tested by practical and thoroughly competent men before leaving our Works; and should defect appear on receipt of one of these Keys, owing to imperfection of material or workmanship, it is to be returned at our expense.

ROGERS ELECTRICAL WORKS

53 DEY STREET, NEW YORK

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1901 ANNOUNCEMENT.

FOR MORE THAN EIGHTEEN YEARS TELEGRAPH AGE has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other, and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. THEY HAVE BEEN INVALUABLE TO THE ACTIVE OPERATOR AS A PRACTICAL AID IN HIS DAILY EMPLOYMENT. The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth more than the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, the quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of TELEGRAPH AGE have come to be regarded as works of reference. They will increase in value as time goes by.

THE PROGRESSIVE CHARACTER of the paper itself is generally recognized, and its influence and high standing in all telegraphic and allied electrical circles is freely acknowledged.

CONDUCTED BY EXPERT TELEGRAPHERS, graduates themselves from the key, their training and sympathies put them in close touch with the conditions and needs of the craft still engaged in receiving and sending the dots and dashes.

THE SUBSTANTIAL ENCOURAGEMENT received in the past has already given TELEGRAPH AGE a wide circulation. And this has steadily grown. Yet the field is constantly expanding. Considering the variety, extent and character of the important matter the paper is now offering in all of its departments, so thoroughly meeting the requirements of up-to-date telegraphic information, technical and general, this journal should be an indispensable factor, not only in every telegraph office in the United States, Canada and Mexico, including those of the railroad, the police-telegraph and fire-alarm systems, but to every individual telegrapher as well. To the upbuilding of this larger circulation, the accomplishment of which means as much to the subscribers as to the publisher, because affording the guarantee of a still further improved paper, we ask the active co-operation of our friends everywhere.

TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call attention to this matter? A sample copy will be sent free to any address on application.

Address, remitting by express or post-office money order, draft or check,

J. B. TALTAVALL,

THE TELEGRAPH AGE,

253 BROADWAY, - NEW YORK, U. S. A.

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of attire not absolutely necessary, in order to insure the greatest degree of comfort attainable. The great blower fan was started none too soon, and the next very acceptable addition to the office furniture was the new fan installed in the city department, where the heat is always the greatest.

The arrivals and departures of late have been very many, so many in fact, that it has been quite a task to keep up with them.

We were glad, however, to note the return of our friend, Horace Holtzinger, who had been touring the West and Southwest in search of recreation and health. He is considerably improved, but the prospect of a busy summer in a hot office is none too inviting for him.

Mr. Chas. T. Koch, another long absentee, due to sickness, has also returned.

Mr. William H. Duckett is again a member of the "extras."

After working very hard on the first New York bonus wire, Mr. Owen has resigned, and Mr. Frank Holloway, of the first Chicago wire, appointed to succeed him.

Atlantic City seems to be holding out great attractions, so much so that a resignation was handed in by one of our men who went there willing to take chances of securing employment.

Miss Jennie Melville of the city department is very much missed, and the prospects are that she is likely to be away for a long season. Her many friends in the office will be pleased when she is able to return to her duties.

SAVANNAH, GA., WESTERN UNION.

Business is fairly booming at this point, the new office is a certainty and Manager L. J. Maxwell and his force are happy in contemplation thereof. The improvements will be made under the direction of Col. J. E. Fenn, electrician of the Southern division.

The force here, in addition to Manager Maxwell, consists of chief operators: Messrs. J. Marshall and Rivers; operators, Messrs. L. M. Walker, T. H. Drakeford, J. A. Hays, Hancock, Isaac White, Casey, W. O. Hampton, Ledlie, H. W. Link, Nance, and Harry Zeigler; clerical department, Mr. Galvin, chief; Mrs. M. Smith, Miss Stella Pacetti and Messrs. Rivers, Peacock, Haygood and Kelly, clerks.

Messrs. Curry, Harry McEwen and Lucas are at the Cotton Exchange for the summer.

Messrs. C. C. Brown and H. E. Stokes are now at the Western Union office, 195 Broadway, New York.

LAKE CHARLES, LA., POSTAL.

Mr. A. O. Boudreaux, manager of the Postal Telegraph-Cable Company, has just returned from a week's vacation. He looks much improved after a few days fishing and woodland exercises.

Miss Gussie Olsen, who has been operator for the last two years, left on the 6th for Little Rock and Hot Springs, Ark. This is her first vacation since being admitted to telegraphic circles.

Mr. George Elms has been appointed manager at Sulphur, La.

Mrs. M. E. Jones, of Sulphur, has been transferred to Jennings, La., and Mr. W. H. Reese, of Jennings, to Crowley.

Mrs. M. S. Reynold, who has been manager at Crowley for the last three years, has resigned.

The oil excitement has caused an increase of business to some extent and also increased the forces along the line.

Mr. Geo. Boudroe has been added to the messenger force.

Mr. S. Cropper is now in charge at Welsh, La.

Mrs. W. A. Owens, wife of Mr. Owens, manager of the Western Union Telegraph Company here, is spending a few days in Mississippi with relatives.

BEAUMONT, TEX., WESTERN UNION.

Departures: J. W. Oberfell, for New Orleans; Samuel Guess, for Galveston; Messrs. Haynes and Mercer, for Shreveport, and Waddell, for Houston.

Mr. John L. Henning, our popular night chief, returned from Sour Lake, where he went in the interest of the Henning Oil Co. There are others in the Beaumont office who will soon bring in gushers. Our chief operator is heavily interested as owner of large bodies of oil land. We all wish them success. Our American District Telegraph force is up to date. All messengers have wheels, and the boys are all competing for the bonus offered by Manager Tompkins, $5 for the boy who makes the most runs, and $3 for the second best average. This inducement has caused a scramble among the boys for first place.

The average words of specials sent out daily is 13,000 words, while the receipts are equal to those of any city in the State.

The Western Union Telegraph Company has just erected two of the highest telegraph poles in the United States, and so far as known they are the highest in the world. The poles stand on the opposite sides of the Neches river, in this city, and each is one hundred and fifty feet high. The height of the usual telegraph pole is forty-five feet, but these are designed to carry wires above the masts of all vessels.

Yes, there has been a boom here, and great ex-

How's This?

We offer One Hundred Dollars Reward for any case of Catarrh that cannot be cured by Hall's Catarrh Cure.

F. J. CHENEY & CO., Props., Toledo, O.

We, the undersigned, have known F. J. Cheney for the last 15 years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by his firm.

WEST & TRUAX, Wholesale Druggists, Toledo, O.
WALDING, KINNAN & MARVIN, Wholesale Druggists, Toledo, O.

Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price 75c. per bottle. Sold by all Druggists. Testimonials free.

Hall's Family Pills are the best.

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citement, but it has calmed down. There has been unwonted and intense interest in the development of the oil fields near this city. That has not abated. The crowds of men one encounters here—and they are to be found on every street corner—are earnest, serious, business like, conversing in animated tones. New comers are eager for information, while those already on the ground are eager to give it. Up and down the avenues pass the hacks, carrying parties to the oil fields to view the wells. The oil people are too busy now boring for oil or making shipments in response to orders, foreign and domestic, to "turn on a gusher" simply to gratify the curiosity of the crowd. Everything is being put upon a sound business basis.

At the wells one of the most interesting sights is that of the boilers generating steam by employing for fuel the oil already obtained.

Only a small tank holding a few barrels is needed for the purpose, and it is fed directly to the furnace. The number of storage tanks already constructed gives the field a business like appearance, and when the derricks already erected, of which there are nearly 300, are in full operation, with men and machinery, the result may be predicted as being beyond all present conception. This is a truly conservative view of the facts, and is thoroughly reliable.

The twelve wells already in are the result of patience and hard work; not, it is confidently believed, of luck or of specially fortunate location. There is no possible reason why, from all present indications, there may not be as many wells successfully opened up in the Beaumont field as have been found in the California, Russian or Pennsylvania fields.

TOPEKA, KAN., NOTES.

The Associated Press operators at this point are Messrs. W. W. Carr, days; George Hart, nights.

The Chicago, Rock Island and Pacific Railway operators are Messrs. Charles Anderson, C. A. Wallace and Theodore Finley.

ST. LOUIS, MO., WESTERN UNION.

Among the latest arrivals are Mr. Moses Frankel, who returned from Fort Scott, Kas., after an absence of one year, and Mr. John Canavan from the St. Louis Postal, formerly of this office. Mr. Canavan resigned about a year ago on account of poor health. After several months spent in recuperation he went to work with the Postal, but finally returned to this office.

Miss Ella Sack, a sister of Miss Bertha Sack, of the wheatstone department, and Mr. Edward Grotpeter, of this city, were married June 19.

Mr. Arthur Jackson has the profound sympathy of his many friends in the loss of his 16 year old sister, Miss Ellen Louise Jackson, who died June 17. A very pretty floral offering was sent from this office on the occasion of the funeral.

Mr. William J. Score and Miss Josie Jacobus were married June 20.

Mr. E. J. Williams was called to South Carolina the early part of June on account of the death of his brother.

Mr. M. M. O'Neill had a finger on his left hand broken during the early part of June while attempting to board a street car. His accident laid him up several weeks.

Mr. George J. Goehringer, who works at the race track office in the afternoon, has been detailed to assist Mr. Frank Spencer, chief of the way department, in the forenoon.

Mr. Klem Madden is having a great deal of trouble with his arms and fingers on account of rheumatism, being unable to work more than half time. Mr. Madden does a great deal of "subbing" for brokers around town.

DENVER, COL., WESTERN UNION.

Mr. Harry Thomas has returned from Las Vegas, N. M., where he relieved Manager Birdsall a few weeks. Mr. Jeremiah Hogan spent several days looking over his mining interest in Cripple Creek district.

Mr. Johans left for Portland June 1.

Messrs. H. E. Madison and G. O. Henning have resigned to accept service with other companies.

Miss Carrie Smith spent a vacation of four weeks at Glenwood Springs, Col., where she enjoyed the delightful baths.

Mr. Geo. Allen of The Associated Press is visiting his parents at Cripple Creek, Col.

Arrivals—Warren Wootton, of the Postal, St. Louis, Mo.; J. W. Hogan, Postal, Denver; Mr. Carswell, of Hutchinson, Kan.; Mr. Estes, of Cheyenne, Wyo.

Mr. J. W. Gargan is handling the baseball wire at the Collender pool room.

Mr. Wm. S. Pitts, of the telegraph staff of the Daily News, was married June 1 to Miss Agnes Loughran. The groom's friends at this office presented the couple with a handsome bedroom suite.

Mr. Fred Wessel is holding down the leased wire at the News office during Wm. Pitts' absence on his wedding tour.

Mr. T. A. Gargan, former manager at Ouray, Col., has been appointed manager at Albuquerque, N. M., vice Mr. G. F. Touhy, who returns to Denver for the Western Union Telegraph Co.

ST. JOSEPH, MO., POSTAL.

Mr. W. G. Brinson, manager of the Postal for the past ten years, has a model office and does a thriving business, with his brother, F. M. Brinson, as cashier and operator; Miss Pearl Smith, bookkeeper, and Paul L. Weber, night manager.

Henry P. Shea is at the stock yards office; C. L. Forcy, at the Hammond Packing Co. Mr. Edward Rugger is the pioneer lineman.

PHILADELPHIA, PA., WESTERN UNION.

Mr. B. M. Langstroth has resigned, to accept a more lucrative position with a private firm.

Mr. H. W. Sharp, of the Evening Telegraph office, had the misfortune to step upon a needle which penetrated his foot to such an extent that the X-rays had to be used to determine its location. It was safely removed, and the injured member is now doing well.

Miss Clara Grimley was overcome by the recent heat while on a visit to the country. She is recovering, and expects to return to duty shortly.

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Miss Katharine Bullen was another heat victim who has just recently returned to duty.

Apropos to the recent hot spell and the heavy volume of business, everybody deserves praise for their faithfulness and patience through the trying ordeal. The operating department, by the way, wish to express their thanks to the officials for their thoughtfulness in erecting four large electric fans, which help greatly to make life more bearable when the weather is hot.

Mr. F. R. Rose is the happy and proud father of a son.

With the summer rush, which is unusually heavy, many new faces are seen in the operating department.

Mrs. Schofield and Miss Heileman are located with Manager Meloney at Atlantic City for the summer, and doing excellent work.

KANSAS CITY, MO., WESTERN UNION.

Our chief operator, Mr. G. W. Brownson, is making an extended eastern trip, and among other points of interest will devote several days to sightseeing at the Pan-American Exposition, Buffalo. His position is being very ably filled during his absence by Mr. S. W. Atkinson. Miss Lulu Lentz has also taken a month off for pleasure and rest.

Mr. H. D. Roach was called to Macon, Mo., on account of the death of his mother, which occurred June 30. Our most profound sympathies are with him.

Mr. James W. Fie, of this office, who went to Las Vegas, N. M., some months ago on account of failing health, died July 8, only a few days after his return home. He began as a check boy about five years ago, and by his kind and gentlemanly manner won the respect and friendship of all with whom he was associated, as was evidenced by the liberal floral contributions which accompanied his remains to their last resting place.

CHICAGO, ILL., WESTERN UNION.

James P. Jamieson died after a brief illness on June 24. He leaves a wife and young child. Mr. Jamieson, who was a native of Hamilton, Canada, had a pleasing personality and was highly esteemed in this office.

Mr. John Wagner is very ill with his old complaint—stomach trouble.

Mr. Edward Wood, of the Jacksonville local, returned after a vacation of two weeks, looking much benefited.

Mrs. Ida Palmer is also back from a vacation trip of two weeks, passed at Spring Valley and at Lasalle, Ill., where she has friends.

The large division of Illinois, Wisconsin and Iowa wires (Otto Enking, division chief) has been divided, the Iowa wires being transferred to Benjamin McKee's division, thus evening up the divisions and relieving the congestion.

The Misses Alice and Eva O'Brien, of Sioux City, Ia., en route for Dayton, Ohio, called here recently.

Mr. Jerry Book and Miss Nellie Fisk were recently married at Waukegan, Ill. Of course they have the well wishes of the entire force.

Through the efforts of Mr. McKee "Old Glory" adorned the space over the loop switchboard on the 4th.

Business is wonderfully brisk, and some say it never has been so heavy since the days of the World's Fair.

BALTIMORE, MD., WESTERN UNION.

Among recent changes are the following: Additions to extra force—Messrs. Wm. P. Keen, J. E. McDonald and Geo. W. Sheppard, from the Postal, and Mr. Jacob G. Kohler, from the American District Telegraph Company. Departures—Mr. Galloway, to Greeneville, S. C.; Spencer Kendall, to North Platte, Neb., and Louis J. Lapsley, to El Paso, Tex.

Miss Katherine Coniff has been appointed operator at Orems Produce Depot, and Miss Bessie Lucas, of Chester, Pa., has been placed in charge of the office recently established at the Johns Hopkins Hospital.

F. T. J. McCaghey has gone to Ireland to visit relatives.

NEW YORK, POSTAL.

The boom in the summer business still continues and so far is the heaviest ever done since the Spanish-American war. June and July, usually considered very dull months here, have thus far been extremely busy, and the force has been taxed to its utmost limit to move business promptly. The late heated spell happily ended in time to prevent a large absentee list developing from its effects. Quite a number were compelled to give up for two or three days, but all are in as good shape now as can be expected.

Mr. Chas. Obst, assistant traffic chief south and west, is absent, enjoying a well earned vacation.

Mr. Edward Hodnett, of the Postal Boston Herald staff, left July 8 for a two weeks' rest in the Adirondacks. His place is being filled by Mr. Geo. McGill, of the main office force.

Miss Avis Gibney started July 6 for San Francisco, to be absent about six weeks, to look after an inheritance recently left her by a relative.

Mr. W. H. Rhodes has returned from the World newspaper to duty in the main office, Mr. W. L. Herron taking his place there.

The many friends of genial and ever good-natured "Pop" Bennett, formerly of this office, will regret to learn that he lies very ill in a hospital with no hopes of recovery.

Arrivals: Mrs. J. S. Nicols, Messrs. H. A. Dunnigan, S. C. Dodd, Miss A. Simmons, Mr. G. F. Lawler, Mr. P. W. Brownell.

Resignations: Mr. Arthur Fitzsimmons and Miss L. Moon.

Mr. J. F. Skirrow, assistant manager of this office, during the recent college boat races, installed three quadruplex sets, a complete dynamo plant and a set of repeaters in the Poughkeepsie, N. Y., office within twelve hours after receiving the supplies, which is record breaking time.

NEW YORK, WESTERN UNION.

Mr. Fred O. Nourse, the general traffic chief, who has been on a two months' vacation at his Littleton, N. H., home, returned to duty July 10, having fully

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recuperated his health, which has been poor for a long time.

The Phelps printing system, which has been working on the Boston circuit for nearly forty years, has been abandoned, and those in charge, Messrs. Joseph L. Edwards and Thomas P. Scully, have been assigned to the Buckingham system, T. B. Fullon to a Morse wire, and J. K. Calvert and Joseph Knittle to the Philadelphia printer.

Assistant Manager Thomas Brennan has again taken up his residence for the summer at Rockaway Beach, L. I.

During the excessive heat the men were permitted to sport themselves in shirt waists to their heart's content.

Mr. George S. Brown, formerly of this office, writes from Los Angeles, Cal., that he is in good health, except for a slight attack of bronchitis. Mrs. Cora Mauer is still in the Memorial Hospital, Brooklyn, and is slightly improved. Mr. Harry W. Sauer, it is said, continues to improve in the Catskills.

The old timer, John Desmond, of the night force, has resigned on account of poor health.

Messrs. V. A. Burnes, chief of tubes; W. E. Rath, traffic chief, eastern division, and J. F. McGuire, wire chief, southern switch, are on vacation.

The father of Mr. Harry S. Pearce, assistant traffic chief, died in San Francisco, Cal., July 5.

Mr. J. E. Hall, of the Western Union, Richmond, Va., office, on his way to the Pan-American Exposition, was a recent visitor.

Mr. George W. Brownson, chief operator of the Kansas City, Mo., Western Union office, spent an hour or two here on July 11 greeting old acquaintances whom he had not seen since 1880. He is visiting New York in company with his wife.

Appointments to regular force: Messrs. G. U. Morris, J. H. Kenney, J. F. Moran, D. Drew, J. Gibbons, L. V. Goodwill, G. W. Ivory, H. Marshak, N. C. Sears, A. T. Harrison, E. B. Johnson, J. F. O'Connor, E. A. Connelly, T. E. Dilkes, P. A. Gersbach, A. F. Murphy, E. A. McElroy, B. Pogue, J. K. Thrower, S. L. Welp, W. W. Heard, L. W. Sitzenstatter and D. A. Florie.

Appointed to waiting list: Messrs. G. B. Guthrie, E. F. McGinn, F. Deems, J. K. Munnerlyn, F. A. Ferris, R. Bunch, J. McGann, S. M. Thurston, F. E. Robinson, H. M. Horton, W. H. Egan, C. M. Robertson, J. F. E. Hopkins, J. H. Bowman, G. Matthews, F. Morris and L. D. Gaskill.

Resignations: Messrs. H. E. Gillman, A. J. Tierney, W. H. Herr, W. M. Stewart, H. B. Rogers, L. N. Mackenzie, R. M. Hall, C. E. Williams, G. B. Fisher, N. E. Popp, A. J. Booth. W. W. Scott, to Spring Lake, N. J., for the summer.

In the quadruplex department, which is one of the busiest sections in the building, Mr. Charles Thom is chief, with the following staff of electricians: O. K. Newton, E. M. Smith, A. M. Pennock, F. A. Lopez, C. W. Moores, H. W. Barbour, P. H. Shaugness and W. Finn.

The funeral of Fred T. Meyer, of this office, whose death was recorded in the previous issue, took place at Brooklyn, N. Y., on July 1, and was attended by the various telegraph societies of which Mr. Meyer was a member. Among those present were Messrs. Francis W. Jones, M. H. Kerner, Walter C. Burton, John Brant, M. F. Gaffney, Thomas E. Fleming, R. C. McDonald, M. J. O'Leary, D. P. Smith, D. J. Christie and other old telegraph associates of Mr. Meyer.

Mrs. Mary E. Kirtland, wife of C. S. Kirtland, died of consumption at Brooks, W. Va., on June 20.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

It being especially desired that the next annual convention of the International Association of Municipal Electricians, to be held at Niagara Falls, N. Y., on September 2, 3 and 4 next, may be fully attended, Mr. Frank C. Mason, superintendent of the telegraph bureau of the police department, Brooklyn, N. Y., and a member of the Executive Committee of the association, desires it to be stated that a handsome souvenir badge will be mailed to any telegraph operator or electrician who will call the attention of the superintendent of fire or police telegraph or city electrician of their respective city or town to the notice of the convention on September 2-4 next, as announced on cover page xv of this issue, and who will send the name of the party so notified, provided he is not already a member of the association, to Mr. Mason.

TELEGRAPH AGE is the leading journal of the kind in the world. It covers its field thoroughly, its technical articles are of high practical value, and no telegrapher, official or operator can afford to be without it.

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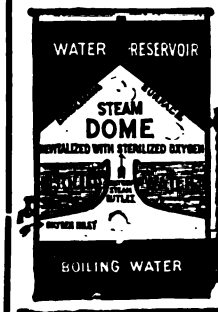


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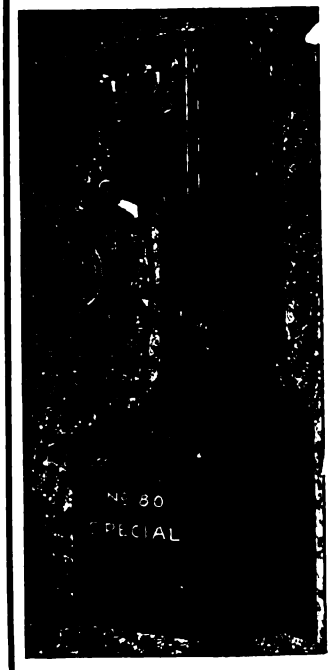
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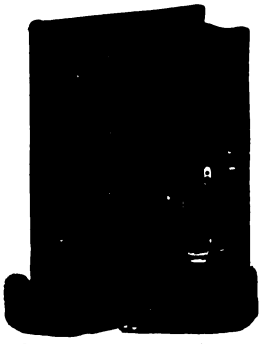
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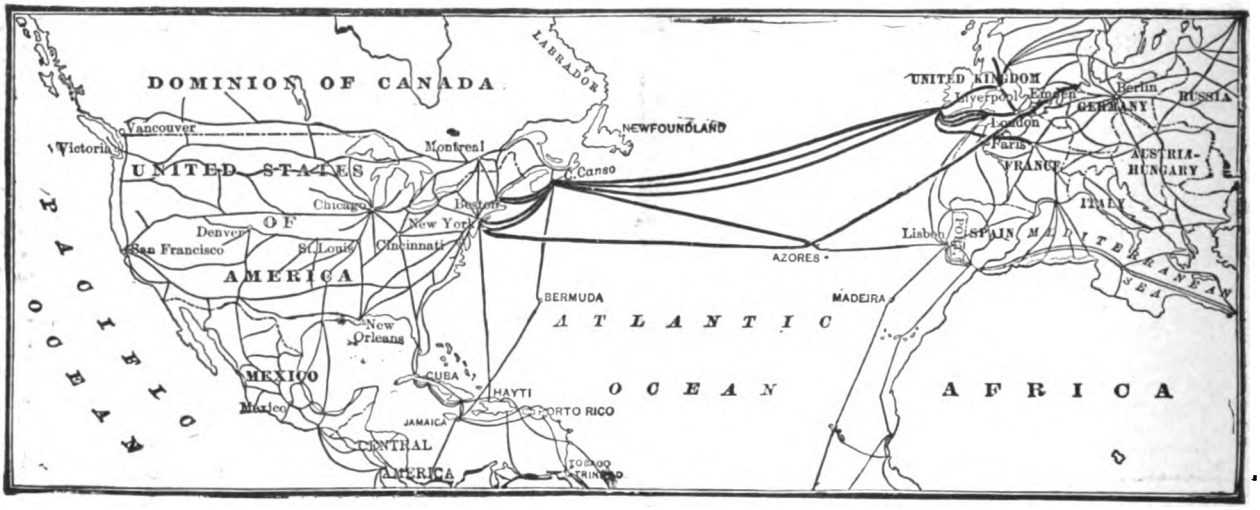
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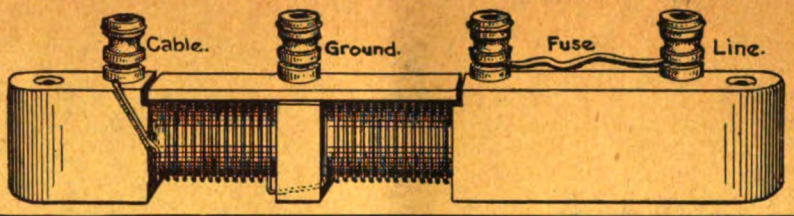
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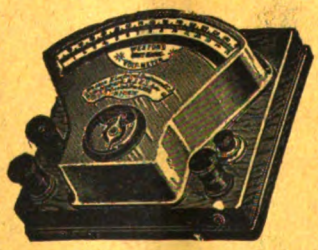
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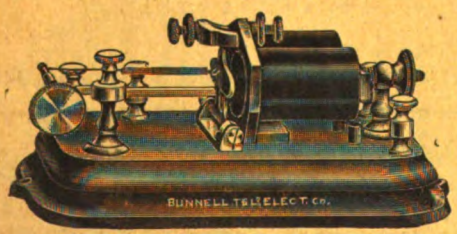
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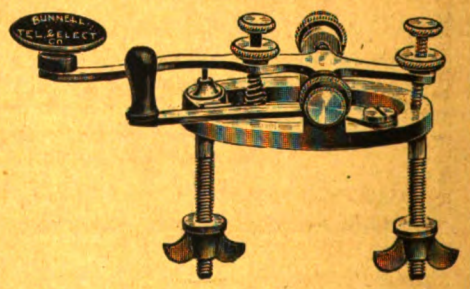


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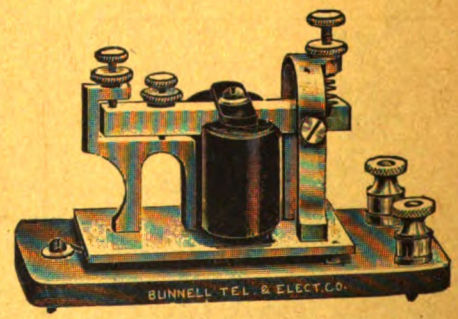


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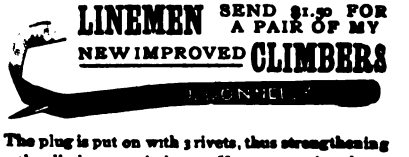
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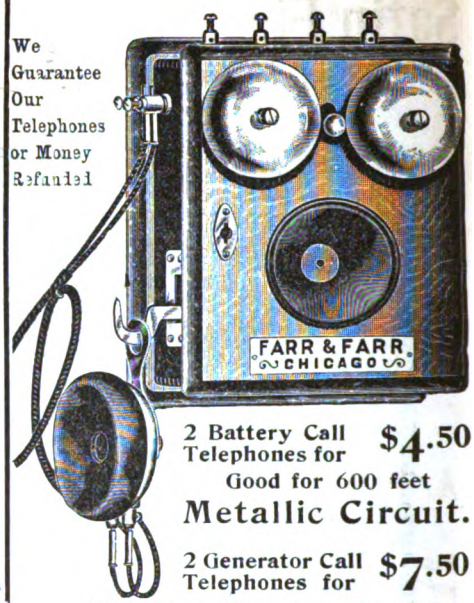
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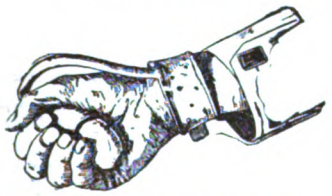
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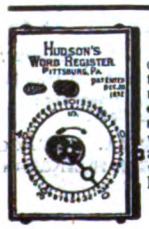
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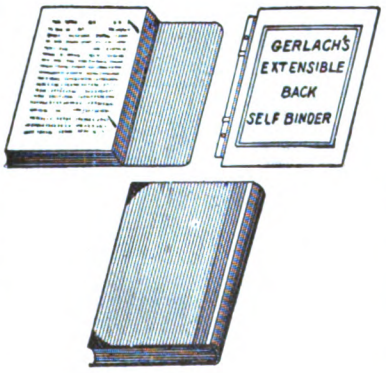
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THE TELEGRAPH AGE.

No. 15. NEW YORK, AUGUST 1, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

The question quite frequently asked by mail and by operators whom we meet personally is: "What is the best way to place one's self in the line of promotion?"

It would be a pretty difficult matter to designate any particular method which would guarantee that result, but there is one way which will certainly enhance one's chances greatly and make himself sought after when an opportunity for advancement does arise, and that is—get out of the old rut and make yourself conspicuous by doing something different from those about you.

No doubt all have heard the old story of the farmer's boy who was sent to the barn to count a new litter of pigs. He reported that he couldn't tell exactly how many there were, but he saw ten lying around the pen and "one little spotted pig that wiggled about so much that he couldn't count him."

Now, the point is that although there were evidently eleven pigs in that pen, the one that "wiggled about" was the only one that the boy ever remembered when he recalled his visit to the stye.

Here is another story: A well-known lawyer once advertised for an office boy, and in order to judge from the composition and chirography which applicants might possibly best fill the bill, he requested that they apply by letter only. The next morning, as might be expected, his mail contained a great number of applications written in various degrees of proficiency, but probably ninety per cent. of the letters showed evidence of a friendly guiding hand. The letter that caught the lawyer's eye and secured the situation, however, was this:

"Dear Sir: I seen your ad and I want the job. It beats hel how hard times is but Im a orphan and got to hustle."

That boy got the place by being original and doing his own correspondence instead of getting a friend to write it up in the usual stereotyped manner. That boy is to-day one of the foremost lawyers in this country.

Here is just one more—a true story of the New York Western Union main office. Every old-timer who worked there in the early seventies will recognize it.

About that time there was working on a way wire situated in the central position of the operating department a tall, good-natured young man who was not satisfied with merely an external view of his instruments, but yearned for a knowledge of their interior also. His curiosity led him to carry about his person a screwdriver, file, pair of plyers and other useful tools with which he pried into every secret corner of the apparatus.

In addition to the knowledge thus acquired his tools soon became very much in demand by operators who wished to clean or adjust their instruments, and being very good-natured and expert in handling instruments, his friends were not backward in asking his aid whenever anything went wrong. After a while the operators naturally began to look upon him as the official overseer of all telegraph apparatus and he "received orders" right and left. In those days the assistant manager was supposed to be general utility man, and he was only too glad to be relieved of general repairing and the adjustment of apparatus. Smith—let's call him Smith—advanced a step further one day when David Downer, then assistant manager, replied to an operator who had asked assistance: "My Stars! Why do you bother me? Go get Smith." Thus semi-officially recognized, he at once became public property. When the quadruplex and other new apparatus were first installed Smith was the first on deck to pry into the secret, if there was any, and to learn how to balance and handle it. By that time his services were indispensable and he was accordingly appointed head of that branch of work which he had himself created.

Smith still holds the position to-day, but, of course, the responsibility has grown with time. For many years no wires or apparatus has ever been installed without his supervision. He draws good money—as salaries go—and is worth all he gets, but does any one imagine that his chances of being selected would have been nearly so great had

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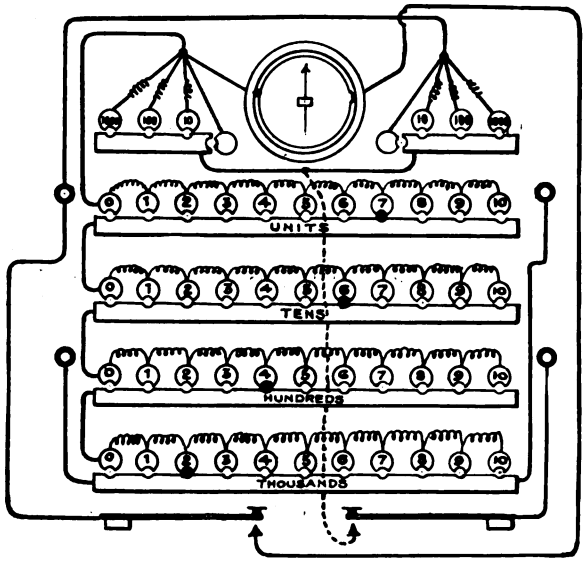
he not equipped his mind and pockets differently from those about him?

Every man who has achieved great distinction in any calling has done so by either far outdistancing the crowd on a common highway, or by creating a new byway of his own. To remain with the crowd is to lose one's individuality.

It must not be supposed that all the short cuts to success have already been discovered and staked by lucky finders. Long after we are dead the same winning tricks will be played by the knowing ones who forge ahead.

Here is one little hint that will hold good as long as the world lasts: Be first in everything. The moment an improved apparatus or new device appears, don't wait until everybody understands all about it, but strive to be among the first who can operate and adjust it. There is always a dearth of help at first and a surplus by the time the crowd shows up.

Don't become discouraged because the opportunity for advancement may sometimes be slow in coming. In a large office one is apt to be somewhat buried, but first show your colors. It is impossible to hide a light completely under the proverbial bushel, for yellow fringes will still stream from underneath the round edges where those who are looking for talent cannot fail to see the sign of promise.



At the request of a St. Louis correspondent we print the accompanying cut showing the inclosed wiring and coil connections of the modern type of wheatstone bridge and galvanometer. The superiority of this type over the old pattern lies in being able to get a direct reading from the plug or plugs inserted to balance the line measured. With the old-style rheostat it is necessary to add together the values of the unplugged resistance coils, thus making possible errors due to miscalculation.

In the accompanying cut the resistance of the line measured, as shown by the plugs, would be 2,467 ohms.

Personal Mention.

Mr. O. R. Roberson, assistant electrical engineer of the Western Union Telegraph Company, New York, is enjoying a two weeks' vacation.

Mr. Thomas A. Edison, the inventor, of Orange, N. J., was a recent visitor at the Pan-American Exposition at Buffalo, N. Y.

Mr. Joseph Dull, formerly superintendent of telegraph of the Florida Central and Peninsular Railroad, is now located with the Seaboard Air Line at Jacksonville, Fla.

Mr. James Merrihew, general superintendent of the Western Union Telegraph Company, New York, finds time the latter part of each week to visit his home in the Catskill mountains.

Mr. W. B. Gill, superintendent of the Western Union Telegraph Company, Philadelphia, Pa., together with his family, sailed for Europe a few days since, where he will spend two months sight seeing.

Mr. S. F. Jones, of the electrical engineer's office, Postal Telegraph-Cable Co., New York, has returned home after an absence of six months in the middle west, where he has reconstructed several office installations for his company.

Mr. F. G. Mason, an old time telegrapher of New York, now assignee for the United Press, has returned from a trip to Chicago, where he visited his parents, Mr. Mason's father being superintendent of supplies of the Western Union Telegraph Company, that city.

Mr. F. P. Valentine has resigned his position as superintendent of telephones of the New York, New Haven & Hartford Railroad and has been appointed superintendent of exchanges of the New England Telephone and Telegraph Company, with headquarters in Boston.

Mr. Edward H. Utley, formerly a telegraph operator for the old Atlantic and Pacific Telegraph Company, and afterwards for the Chicago, Milwaukee and St. Paul Railway, has been appointed general manager of the Bessemer and Lake Erie Railroad, of which road for the last four years he has been the general freight and passenger agent. He is 51 years of age.

Lieut.-Gov. Alfred G. Jones, of Nova Scotia, who is a cousin of Mr. Francis W. Jones, the electrical engineer of the Postal Telegraph-Cable Company, New York, is to be knighted by King Edward. Governor Jones, it will be remembered, was the Dominion High Commissioner for the Canadian and Australian Pacific Cable, and his valuable work in that connection contributed materially to the consummation of that greatest of all single cable projects.

Coming Conventions.

The International Association of Municipal Electricians, at Niagara Falls, N. Y., September 2, 3, 4.

The Old Time Telegraphers' Association and the United States Military Telegraph Corps (jointly), at Montreal, Quebec, September 11, 12, 13.

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Miscellaneous Items.

Mr. J. R. T. Auston, well known in telegraph circles throughout the country, has accepted a position with the Postal Telegraph-Cable Company at Fort Worth, Tex.

Mr. W. L. MacLellan, one of the best known old time New York telegraphers, is now assistant manager of the Waldorf-Astoria office, New York, of McIntyre & Marshall, bankers and brokers.

At Springfield, Ohio, on July 18, the Magneto Electric Company elected Dr. L. E. Niles president; W. S. Van Brocklin, vice-president; L. G. Woolley, secretary and treasurer. This is the company that controls the magneto principle for the operation of telegraphs.

Mr. W. A. Harris, manager of the Western Union at New Haven, Conn., was recently at Newport, R. I. He was on a few days' yachting cruise on his own account, which is about all the vacation he gets in the year. He is familiar with Newport, where he was once a temporary manager and where his presence is always welcome.

Mr. A. Davidson, formerly of the cable steamer "Minia," and of the Commercial Cable Company, New York, and for the past four years with the Central and South American Cable Company at Baranco, Peru, who has been suffering from typhoid fever for the past two months, is now entirely recovered. Mr. Davidson made numerous friends in this country before leaving for South America.

Mr. Thad. M. Schnell, a member of the United States Military Telegraph Corps, who took a prominent part in the handling of telegraphs during the Civil War, and who has resided at Des Moines, Iowa, for many years past, has recently accepted a position with the Postal Telegraph-Cable Co. at Chicago, Ill., where this veteran of the key will no doubt display satisfactorily his old time telegraphic ability.

Mr. Patrick B. Delany, the telegraph inventor, who resides at South Orange, N. J., is the possessor of three costly dogs. There is nothing strange in this, but the names they bear prove that Mr. Delany is still an enthusiastic member of the telegraph profession, notwithstanding the fact that he has not touched a key (commercially) in a quarter of a century. The names of his dogs are "Telegraph," "Multiplex" and "Michael Farraday."

Doctor J. C. Barclay, electrician of the Western Union Telegraph Company, Chicago, Ill., in a recent letter to this paper, writes: "I think you deserve a great deal of credit and all the support from every one connected with the business that can be given to you for what you have done and are doing for the profession at large. Your paper has done more to educate people in the ranks and enable them to better themselves than any paper that was ever published, and if the chief operators and operators do not take advantage of this they have no one to blame but themselves."

It was an old saying of Mr. Walter B. Phillips, that a man never needed a vacation until he had had one. The truth of this remark was abundantly verified, although perhaps not in the sense intended, by the late experience of the New York man who sought recreation on the New Jersey shore. His present need of a further vacation, in which to recuperate from the attacks of the voracious insect indigenous to this American "Mosquito Coast," is but too painfully evident.

Resignations and Appointments.

Mr. R. E. Close, formerly operator on the Keokuk and Western Railroad at Keokuk, Iowa, has been appointed train despatcher of the same interests at Centerville, Iowa.

Mr. B. P. Hancock, chief operator of the Postal Telegraph-Cable Company, St. Louis, Mo., has been promoted to the position of traffic chief of the same interests at Chicago, Ill.

Mr. E. W. Blakeley, chief operator, Postal Telegraph-Cable Co., Columbus, O., has been promoted to the position of manager of the same interests, vice W. L. Truesdell, transferred to Chicago.

Mr. Stephen W. Monks, superintendent of construction of the Postal Telegraph-Cable Company at Albany, N. Y., has resigned, and accepted a similar position with the Western Union at Pittsfield, Mass.

Mr. Murray E. Dikeman, manager of the Postal Telegraph-Cable Company at Owego, N. Y., has been appointed manager of the same interests at Binghamton, N. Y. His successor at Owego is Mr. David N. Ellis, son of John S. Ellis, who immediately preceded Mr. Dikeman.

Mr. T. H. Harper has been appointed chief operator of the Western Union Telegraph Company at Toledo, O., vice Mr. F. C. Hackett, who has been transferred to a similar position at Cleveland, O.; and Mr. F. J. Krumling has been appointed wire chief of the same inferests at Toledo.

Obituary.

Erwin L. Hayes, a telegrapher, of Elmira, N. Y., died on July 18, after a lingering illness.

John Fottrell, of Wilmington, Del., an old timer and well-known telegrapher, died on July 13, aged 62 years.

James F. Valentine, aged 40 years, foreman of construction of the Western Union Telegraph Company, Jacksonville, Fla., died on July 14.

Mr. John H. Cheever, president of the New York Belting and Packing Company and of the Mechanical Rubber Company, the father of Mr. H. Durant Cheever, of the Okonite Company, New York, died July 9, at his home at Wave Crest, Far Rockaway, New York city, in the 78th year of his age.

New York Visitors.

Mr. E. B. King, manager Western Union cable station (Jupiter-Nassau cable), Jupiter, Fla.

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ON BALANCING QUADRUPLEX'S AND POLAR DUPLEX'S.

BY E. L. BUGBEE, WASHINGTON, D. C.

Since the questionable scheme of putting up quadruplex and duplex sets in some out of the way place and sending them to the operating tables on "legs" has come into use, much valuable time is lost in getting "q.c." or some other invisible person to come to the set to balance.

This is the more aggravating when business is behind and wires working badly, because every set needs frequent attention, and "q.c." can be in only one place at a time.

Where it happens that both ends of a quadruplex are thus removed the delays are more than doubled; and when in addition the circuit is repeatered the delays are sometimes longer than the intervals of working.

It often happens that one "q.c." will "come in" and cannot get the other. Two good operators at the opposite end, perhaps competent quad men also, are powerless to help him because the "ground" switch is on the set elsewhere. "Q.c." has other troubles pressing upon him; in fact, more than he can possibly attend to, and he reluctantly leaves this one temporarily. Meanwhile the other "q.c." comes in and can't get the one who sent for him. He also has troubles of his own and "can't stay here all day."

I have often wondered why, under such circumstances, a working balance is not found in some other manner, but it seems that very few men have ever got beyond the original instructions, namely, "get the other end to ground, then go to ground yourself, turn your relay armature to center," etc.

Now, there is a way to balance without going to ground at either end. I have practiced it more or less for years, and if I were working a polar duplex I would not ordinarily ask the other end to ground from the beginning of the year to the end of it. All that is necessary is to say "break," stopping the other end from sending for a moment. On a quadruplex it is a little more troublesome. It is necessary to stop the sending from the other end on both sides and to close the key on the second side to get the full force of the home battery.

My plan then is as follows: Place a finger of the left hand on the armature of the polar relay, resting the hand or arm against something to steady it. If the key at the other end is open, press forward on the armature; if the key at the other end is closed, press backward on the armature until the magnetic force of the coils is nearly overcome by the pressure of the finger. Then with the right hand open and close the key, working the pole-changer slowly, making very long dashes. If the relay armature under the pressure of the finger follows the movement of the key, that is to say, if the receiving sounder closes when the key closes, the balance is too short and needs lengthening by taking out plugs from the rheostat. On the contrary, if the armature goes backwards when the key closes, the balance is too long and needs shortening by putting in plugs in the rheostat.

For the static, if the armature jumps when the key closes, more condenser is needed, and, on the contrary, if it jumps when the key opens the condenser should be reduced.

It may be that the armature is off from the center. If so it may be turned in or out as required. That can be pretty accurately judged by the eye and more so by the finger. After moving the armature the balance may need further correction to perfect it.

When the armature is on the center and the balance correct there will be no movement or jump of the armature under the most delicate pressure of the finger; and the finger can be trained to a very delicate touch. The first efforts to balance in this manner may be awkward and inaccurate, as they no doubt were after the old method, but "practice makes perfect," and it is possible to acquire sufficient skill in a short time to get a good working balance without the presence of "q.c" at the other end, to "ground."

This method of balancing is especially valuable at the terminals of a repeatered circuit. There ought never to be any time lost by being out of balance at the terminal end of a polar duplex in waiting for the repeater station to come in to "ground" for a balance; nor on a quadruplex under any ordinary conditions.

Recent Telegraph Patents.

A printing telegraph has been patented by John Rogginger, of Milwaukee, Wis.

A patent for a telegraph apparatus has been taken out by John Burry, of Fort Lee, N. J.

A telegraphic transmitting, receiving and translating arrangement has been patented by Alexander Muirhead, Shortlands, England.

A method of telegraphing, indicating time, or actuating mechanism electrically, has been patented by César R. Loubery, Paris, France.

Two patents for telegraphic instruments have been awarded to John J. Ghegan, Newark, N. J., assignor to J. H. Bunnell & Co., of New York.

Patents for a telegraph switching apparatus and for a device for the protection of multiple-telegraph instruments, have been awarded to Francis W. Jones, of New York.

General A. W. Greely, chief signal officer of the United States Army, has devised a telegraph and cable code, which is said to be much simpler than those at present in use. A patent (No. 678,363) for this code was granted to General Greely by the United States Patent Office on July 16.

Odds and Ends.

"Please send a little louder, I am hard of hearing," was the remark made on a wire recently.

The message read: "Am hoc, came on ove." It ought to have read: "Am here, came on Erie."

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The Importance in Telegraphy of Apparently Little Things.*

BY THOMAS D. LOCKWOOD.

(Concluded from page 294.)

In operation also, we can well look after small matters. I have known reputable operators to adjust with a very slack armature spring, and a distant magnet; others to adjust almost altogether by the magnet screw; others, again, to prefer a moderately slack armature spring and a moderately distant magnet. Yet although I have found many who did not know it, the best results, as is evident by applying intelligent thought, are to be attained by working with the magnet as close to the armature as can be arranged without taking the chance of straining the latter; to adjust the limit stops so that while the armature is thus close it can never absolutely touch the magnet cores; to keep the magnet adjustment generally permanent; to have a highly adjusted armature spring, and as far as possible to adjust altogether by such spring. For, when this is done, we make the most of whatever current there is on the line and thus get a snappy forward attraction, while the tight spring gives an equally sharp retraction. Any temporary readjustment can be much more effectually done by adjusting the spring than by changing the position of the magnet.

Sometimes a relay, otherwise good, will exhibit signs of residual magnetism, and will thus become difficult of adjustment. A very little change will often remedy the effects of this phenomenon. This is accomplished by transposing the main wires and relay binding screws, so that the direction of the current through the relay winding is reversed. Yet how few are the operators capable of thinking of this simple expedient; and how few are they who have any acquaintance with the thought that polarity is changed when the direction of the current through the magnet coils is changed; or, indeed, with the phenomena of polarity at all.

Every man either at way or terminal stations should be sufficiently familiar with the pin switchboard to make any ordinary change wanted or called for, with certainty. That is, he should be able to put on a ground connection on either side of the instruments; to transfer any line to any set of instruments; to cross-connect any two lines; and if a main battery is placed at his station to determine the connection of the same with any or all of the lines, and to reverse the said connection.

None of these are great things, but I have known many operators who could not perform them all. The moral, of course, is, that they should be taught.

In the matter of batteries, we may surely assume that at stations where there are main batteries, there must always be some one of requisite skill to look after them, and that we may therefore restrict our considerations to local batteries. The care of these, of course, should be understood by every operator; but, alas! it is not. Indeed, how can it be, if we have no organized plan of instructing those newly taking the vocation of an operator, and if we let each one gradually learn by rediscovery, instead of seeing to it that each young operator shall be able to avail himself of the accumulated knowledge of the years that have passed.

Often a local battery is allowed to remain without attention far too long, and is at last only taken apart, cleansed and renewed because it is actually unable to work any longer. When disconnected, if it be one having porous cups, it is found that the substance of the cup in a number of places is plugged or filled up with crystalline copper, and that the porousness is to a corresponding extent impaired. It is well to remember in setting the battery up again that these copper incrustations and deposits may be prevented in a new cup, and diminished in an old one, by the simple expedient of so placing the zinc that it shall not touch the bottom or sides of the cup. This fault can only occur, of course, in the old-fashioned Daniell cell, where the zinc substantially in the form of a four-rayed rod stands on end in the porous cup. It can be prevented by putting a little flat piece of wood in the bottom of the cup for the zinc to stand on, or by boring a hole through the top of the zinc and inserting a small cross-rod therein, by means of which the zinc may be hung across the top of the cup with its lower end a little distance from the bottom thereof.

In batteries—local batteries in particular—it frequently happens that the connections or screw clamps beween the cells are allowed to oxidize, or to become covered with crystalline accretions; this last in the case of potassic bichromate batteries especially; and the crystals in such batteries, being chrome alum, are, therefore, non-conducting and insoluble. Too much stress cannot be laid upon the value of absolute cleanliness in this respect, and of bright surfaces in all such mechanical connections. Any carelessness in such matters produces an unnecessary resistance with consequent lowering of current and waste of energy.

Every operator at every station, however important or non-important, should know when and how to take a battery to pieces, how to clean it, and set it up again. I fear that all operators do not. Every operator should know that in a blue vitriol battery the solution of zinc sulphate should be strong enough, but not too strong; and that the current is unduly weak, both when the zinc solution is too weak, and when it is too strong. But I fear that many operators have no such knowledge. As I have previously said, how should they know such things if they are not taught, and how can they be taught if there is no one to teach them? I recollect an instance where at a certain summer resort I had occasion to send a telegram, and going to the office found the operator (a lady, and depending on a register,) in great tribulation because her register would not emboss. The local current was so weak that she could not read a word on the register. Being an old craftsman, I, of course, wished to help her, and taking a look at the local

*Read before the convention of the Association of Railway Telegraph Superintendents, at Buffalo, N. Y., June 19, 20, 21, 1901.

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battery, found it in the most deplorable condition. I had neither time nor inclination to make a thorough job of it myself, yet being satisfied from the look of things that the zinc solution was saturated, I emptied out about two-thirds of the solution surrounding the zinc plate and filled it up with water. To the great astonishment of the operator, who had watched me closely, evidently with the idea in her mind that only an inspired idiot could hope to strengthen a battery by weakening its solutions, the current instantly recovered its strength and the register consented to work. To this day she tells the wondrous story of the gentleman who strengthened the battery by weakening it. This, therefore, is another instance of the importance of the day of small things.

But to show how easy it is to go from one extreme to the other, I may mention an instance showing the way in which another young operator applied such knowledge, after I had, as I supposed, charged him with it sufficiently and correctly. He took his battery to pieces and set it up again under my supervision, duly setting aside a portion of the clear sulphate solution to start the current of the renewed battery; but obviously made up his mind on one point while doing so, to a certain extent in opposition to my instructions. The next time he had to do the same unpleasant work he decided for himself that if it was a good thing to throw out two-thirds of the old zinc solution (and it clearly was) it would unquestionably be a much better thing to throw away the whole of it. This he did, and, of course, with the result that when the battery was again set up it developed practically no current. The unfortunate operator was in despair, and had to own up that he had thought he knew more than his chief, and to acknowledge what he had done.

He was shown that the trouble could be remedied at once by buying a little sulphate of zinc and by substituting a solution of the same for a portion of his fresh water, and was told the reason why. And he was also told that under similar circumstances, the battery—if not wanted immediately—could make its own sulphate of zinc solution if short-circuited for a couple of days. He never forgot again, and I learned that when I had bright persons to teach, it was always a good plan not only to show how, but also why things should be done in one particular way rather than another.

When gravity batteries are used and there are no covers to the jars, there is a very great tendency to evaporation. When I first worked with gravity batteries I was told this, and was also told that to counteract such tendency, a layer of crude cotton seed oil must be poured over the top of the zinc solution. But crude cotton seed oil is a most abominably filthy article, and after thinking the matter over, I decided to try melted paraffine in its place. This answered the purpose admirably, quickly solidifying in a thin covering over the liquid. But it is too expensive for general use; and I presently found that tallow makes a very good substitute. It prevents evaporation, and when the cell is to be cleaned, the film of tallow can with ease be cut across and round, and taken off in two or three pieces, exactly as a cook would remove flakes of congealed fat from the surface of cooled soup.

Sometimes a Leclanché cell with sealed porous cup, will not work at all satisfactorily. It seems as though the cup though really porous is utterly impervious to the battery fluids. When this happens, it is probable that the vent holes in the sealing have been stopped up. This being so, the remedy is to run a pointed iron or steel rod, such as a fine screw-driver, through the holes into the mixture so that the gas may escape. But if the so-called porous cup be really too hard or glazed, it can be made to work by boring several holes through its sides.

There are, of course, a multitude of other small points regarding the conductor, battery and instruments which might be mentioned; but this paper is already too long, and I have thought it best to speak of little things of import which are not often mentioned in books, but which have come under my personal observation. Doubtless every one of my hearers is well posted on these and many other similar matters; but they are so common to us seniors, that we forget they were not matters of course to us when we were juniors.

I think they indicate, first, the need of some practical plan for the instruction of young operators, not only in sending and receiving Morse, but also in everything that can be taught about the line, instruments and batteries with which he is to be associated; and, second, that there might properly be a regular inspection system for lines, batteries and instruments, but especially the two latter, this being so carried out that each office should be thoroughly inspected at least twice a year.

The two ideas might be combined in the person of a suitably qualified, and well experienced operator, who visiting offices periodically could not only perform such personal inspections, but could likewise devote a portion of his time to the questioning and instruction of the younger operators; and in some cases also of such of the older ones as do not already know it all, or are not too old and case-hardened to learn.

Eighteen acting telegraph operators at Police Headquarters, New York city, have protested against the obstacles which they say are thrown in the way of becoming regular operators. At present they each get $1,400 a year, while regular operators, of whom there is none at headquarters, get $1,850.

Complaint is made of the exorbitant charges exacted for telegraph messages by the United States Government land lines in the Philippines. Evidently the desire to make the lines self-sustaining is the cause for the high rates.

The Corean (Asia) telegraph bureau reports a business for 1900 amounting to 72,443.26 yen ($36,222), being an increase of 21,756.37 yen ($10,878) over 1899.

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Electrical Units.

In response to a request for the publication of the electrical units as recommended by the International Electrical Congress, in August, 1893, and which have since been adopted and legalized by the United States, England and other countries, they are given as follows:

The unit of resistance, the international ohm, which is based upon the ohm equal to 10^9 units of resistance of the C. G. S. system of electro-magnetic units, is represented by the resistance offered to an unvarying electric current by a column of mercury at the temperature of melting ice, 14.4521 grams in mass, of a constant cross-sectional area and of the length of 106.3 centimeters.

One B. A. unit =.9889 legal ohms =.9866 international ohms.

One legal ohm = 1.01122 B. A. units =.99767 international ohms.

One international ohm = 1.01358 B. A. units = 1.00233 legal ohms.

The megohm = 1,000,000 ohms.

The microhm = 1—1,000,000th ohm.

The unit of current, the international ampere, which is one-tenth of the unit of current of the C. G. S. system of electro-magnetic units, and which is represented sufficiently well for practical use by the unvarying current which, when passed through a solution of nitrate of silver in water, and in accordance with the standard specification, deposits silver at the rate of 0.001118 grams per second.

Milliampere = 1-1000th ampere.

The unit of electro-motive force, the international volt, which is the E. M. F. that, steadily applied to a conductor whose resistance is one international ohm, will produce a current of one international ampere, and which is represented sufficiently well for practical use by $\frac{1000}{1434}$ of the E. M. F. between the poles or electrodes of the voltaic cell known as Clark's cell, at a temperature of 15° centigrade.

As a unit of quantity the international coulomb, which is the quantity of electricity transferred by a current of one international ampere in one second.

As a unit of capacity the international farad, which is the capacity of a condenser charged to a potential of one international volt by one international coulomb of electricity.

The microfarad = 1-1,000,000 of a farad.

As a unit of work the joule is 10^7 units of work in the C. G. S. system, and which is represented sufficiently well for practical use by the energy expended in one second by an international ampere in an international ohm. It is equal to .7373 foot-pound.

As a unit of power the watt, which is equal to 10^7 units of power in the C. G. S. system, and which is represented sufficiently well for practical use by the work done at the rate of one joule per second.

746 watts = one horse power.

The kilowatt = 1,000 watts.

As a unit of induction the henry, which is the induction in the circuit when the E. M. F. induced in this circuit is one international volt, while the inducing current varies at the rate of one ampere per second.

One horse power = 550 pounds raised one foot per second, or 33,000 pounds, one foot per minute = 746 watts.

Mils = thousandths of an inch.

d^2 = circular mils.

The circular mil is now generally used as the unit of area when considering the cross-section of electric conductors, the resistance being inversely, and weight of copper directly, proportional to the circular mils.

Dispatching Trains by Telephone.

Mr. Thomas E. Clarke, an old time telegrapher, now general superintendent of the Delaware, Lackawanna and Western Railroad Company, at Scranton, Pa., has decided to run the trains on a portion of his system by telephone instead of by telegraph as at present.

The work of installing a complete telephone system along the line of the Morris and Essex division of the road is being pushed with all possible dispatch. It is the intention of the company to equip each station with a complete telephone system to be used in the place of the present telegraph system in transmission of orders pertaining to the arrival and departure of trains, the officials believing that greater accuracy and saving of time in the carrying out of orders can thus be secured. It is proposed to equip the various branch lines first, and then, after a careful trial, if the plan is found to satisfactory, the main lines will be fitted out.

This new departure will in no wise effect the present working force of railroad telegraphers, for in the majority of stations along the lines of the Lackawanna road the operator also performs the duties of ticket and freight agent, and at those stations where individual operators are employed the force will still be maintained, as it is not the intention of the company to discontinue the telegraph system, except so far as it applies to the dispatching of trains. Superintendent of Telegraph L. B. Foley, who has charge of this work, states he is unable to say just how soon the new system will be in operation, but the work is being hurried as fast as possible.

Telephone lines have been constructed from Hoboken to Washington, N. J.; from Hoboken to Morristown, N. J., to be extended to Dover, N. J.; from Tobyhanna to Gouldsboro, Pa.; from Hallstead, Pa., to Binghamton, N. Y., and from Scranton to Clark-Summit, Pa., over all of which trains will be moved by telephone. These lines cover the portions of the railroad system where the traffic is very heavy. For the purpose of dispatching trains regular "19" and "31" train order blanks will be used. In order to insure safety and to record the train orders transmitted by telephone a phonograph will be placed in each circuit, the wax cylinder being large enough to record twenty-four hours' work.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for sample copy.

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James H. Drakeford.

James Haile Drakeford is one of the brightest men among the younger generation in the employ of the Western Union Telegraph Company. He is a native of South Carolina, having been born at Camden, in that State, on October 19, 1872. He has been in the telegraph service for about ten years, continuously during that time with the Western Union, commencing his business career before he was twenty years old. His first position as an operator was in 1891, when he was stationed at the well-known Battery Park Hotel, at Asheville, N. C. From there he went to the Charlotte, N. C., office for a brief time, or until December 15 of the same year, when he was called back to Asheville to fill the position of chief operator. The occupancy of this post, however, was of short duration, for in January following, 1893, he was transferred to the Richmond, Va., office, where as an



MR. JAMES H. DRAKEFORD,

Western Union Manager at Asheville, N. C.

operator he remained until May 15, 1894. By this time, although not yet 22 years of age, so capable a telegrapher had he become, that he received the appointment as manager of the Asheville office, to which point he once again returned. This responsible place he has since held both to his own credit and to the advancing reputation of the office.

On the first of January last Mr. Drakeford was married to Miss Clara Bristol, of Chicago, Ill., the only daughter of Mr. C. H. Bristol, general superintendent of construction of the Western Union Telegraph Company in that city. Mr. Drakeford is a prominent Mason and has filled various high positions within that order. At present he is a High Priest of Royal Arch Masonry in Asheville, an officer in the Grand Chapter of North Carolina, a trustee in the only Scottish rite body in that State and a member of the Ancient Arabic order of the Nobles of the Mystic Shrine.

Responsibility for Electrolysis.

The report of the Master in Chancery on the Peoria, Ill., electrolysis litigation is unique in its frankness, and, in so far as it places the entire responsibility for the alleged damage to the mains and services of the Peoria Water Works Company upon the electric railway companies, says the Telephone Magazine, it establishes a precedent which may be far reaching in its effects upon the capital invested in electric roads throughout the country.

The question of the right of the railway companies to use the earth as a return commenced almost simultaneously with the introduction of the trolley. The telephone companies first raised objections to this owing to the interference with their service, which at that time was almost entirely on grounded circuits. The railway companies were victorious in the resulting litigation and the telephone people were required to introduce the metallic circuits as a result. The question involved in the controversy was somewhat different from that due to the Peoria conditions, and it is fair to assume the railways had as much right to the earth as the telephone companies.

Subsequently, however, attention was directed to the apparent deterioration of certain metallic underground structures, such as water pipes and lead-covered cables. After some experimenting it was found that, owing to the poor rail bonds, the rails being used as a return, the railway currents were leaving the rails at points remote from the power stations and following the water mains and lead-covered cables as the path of the least resistance, and, within certain districts adjacent to the power stations, returned to the rails.

These districts may be entitled the "danger districts," for damage is chiefly done when current leaves the mains or cables to return to the rails. Under these conditions the cables become the anode and the rails the cathode of an electrolytic cell, the earth, where moist, acting as the solution in the cell. The rapidity with which the deterioration occurs is largely affected by the difference in voltage between the cables and the rails. The greater the difference in voltage the more rapid becomes the deterioration, and vice versa.

The decision under discussion points to the adoption of the overhead double trolley or a completely insulated metallic circuit as the only means of effectually and completely removing the cause of trouble.

The Western Union Telegraph Company has adopted the Atkinson repeater. This repeater is the invention of Mr. R. L. Atkinson, who up to a short time ago was a member of the Western Union force at 195 Broadway, New York. This repeater was described and illustrated in our issue of August 1, 1899.

On July 19, 1883, eighteen years ago, the big telegraphic strike, which lasted a month, occurred. It was a memorable affair and widespread in its operation.

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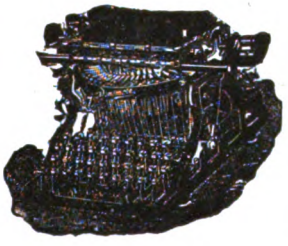
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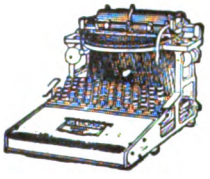


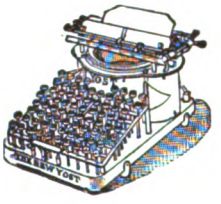
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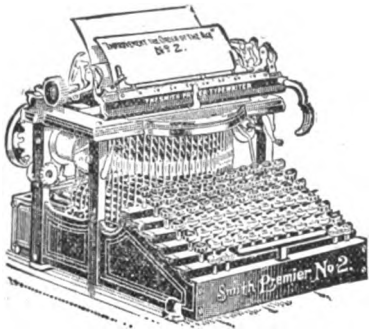
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NEW YORK, August 1, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

Rumors of telegraphic consolidation between the Western Union and Postal Telegraph-Cable companies are rife again, and the officials of both are once more denying that there is any truth in the report. On account of the frequency and pertinacity with which these recurring canards are circulated, it is suggested that the companies concerned prepare a denial blank for ready use when called upon for information.

Work of the Editor.

It is odd what curious conceptions frequently prevail as to the functions of an editor and the methods employed in the making up of a paper like TELEGRAPH AGE. Sometimes exceedingly grotesque questions are put to us by correspondents regarding the matter. Some people there are who imagine, apparently, that pretty much everything that appears in this journal originates with and is written by the editor, and that the whole is the direct expression of but a single individual. Others, again, appearing to believe that scarcity of material is one of the difficulties that has to be met and overcome in a newspaper office, accordingly send in vast quantities of matter, much of it "original," for purposes of helping to "fill up." This is doubtless well meant, but the waste basket invariably receives the "stuff," or, possibly, to let the contributor down easy, it is "declined with thanks."

Then there is the man who thinks it's easy enough to edit a paper and who always has advice and suggestions on tap to fit every possible exigency. His diction is usually muddy, and his grammar execrable.

Now, as a matter of fact, the editorial problem resolves itself into the proposition, not altogether of what to print, but equally so of what not to print. From the great mass of material which comes to us from many sources it is the editor's business to make proper selections therefrom. This is no easy task, for it involves the careful and discriminating reading of enough matter to fill a dozen such papers as this. From out of it all is culled and winnowed the desired information bearing on the telegraph—practice, policy, incident, history, story, the welfare of the fraternity, etc., appropriate and essential for publication in an exclusively telegraphic paper. All matter thus selected must necessarily be put in proper shape for use—in a word, it must be edited. This means rearrangement frequently; the combining of information and often its verification; the writing of words or paragraphs of introduction; the choosing of headlines, etc. It will thus be seen that it is not the dilemma occasioned because of a lack of matter wherewith to fill our pages that confronts the editor, but rather because of the very superabundance from which pertinent choice must be made.

While, of course, the successful editor should be a well informed man, to many laymen he is supposed to (should) know all that is transpiring in the telegraphic world, all that ever has occurred therein, and to be able also to make a fair guess of what may happen in the future. His mind should be a perceptive as well as a receptive one, a complete storage reservoir of facts and dates labeled and arranged for immediate use, and held ready at all times to honor offhand all drafts of questions that may be made upon it. And yet, how quick is the otherwise complaisant eye to detect an error. If the painstaking effort of the editor, made evident in every department of the paper, be not sufficient to at least relieve him of intentional or even careless acts of commission as well as of omission, nothing will probably save him. For, when all proofs have been carefully

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read and revised and the paper finally made up, and the printed page goes to the reader bearing the dreadful and inexcusable misspelling of a name (very likely the fault (?) of the printer, or more likely because it was badly written in the original copy), then must the unfortunate editor come in for a share of criticism that nothing can offset.

Telegraph Age and Its Agents.

To act in a representative capacity for TELEGRAPH AGE evidently carries with it a certain amount of influence, and imparts to the individuals so employed and identified a prestige and standing in telegraphic circles not easily otherwise acquired.

This we judge to be the fact when we note that within a single week, lately, no less than three of our agents, located in different parts of the country, have been singled out for promotion. The names of these fortunate persons who have thus been selected are: C. F. Bartlett, to be chief operator of the Postal Telegraph-Cable Company, at St. Louis, Mo.; T. H. Harper, to be chief operator of the Western Union Telegraph Company, at Toledo, O., and R. E. Close, to be train dispatcher of the Keokuk and Western Railroad, at Centerville, Iowa.

These are well merited promotions and were conferred because the appointees were deemed fit by reason of experience, fidelity and by close and intelligent application to the interests which they faithfully served. They had made a practical study of the science of telegraphy, following out the admonitions so frequently expressed in this journal and urged upon its readers. They had prepared themselves for more advanced positions, and of this fact their respective companies were fully cognizant, for, as in the case of almost all corporations, whether so admitted by employees or not, a closer watch is kept upon the men than usually appears on the surface.

The ethics of the situation is with the painstaking and studious employee, and promotion is the logical result. Favoritism may exist, but the instances of its exercise are comparatively few, and real worth in the ranks will almost invariably meet with recognition and reward. For in ninety-nine cases out of a hundred the future officials of all grades in the telegraph service must, in the very nature of things, come from the bottom. How important, then, to the individual to prepare himself and make ready while yet a young man for a future that normally should be full of promise!

We are gratified to know and to feel that the influence of this journal has been of a tendency to awaken enthusiasm and to stimulate ambition in the individual. Without enthusiasm nothing can be accomplished; with it all opposition may be overcome. We have the testimony of many operators that their uplift in character and purpose in life, and consequently their business betterment, is due to the influence exerted by TELEGRAPH AGE. This is a pleasing reflection.

We believe the tendency to-day among a majority of telegraph operators, especially among the younger men, is to acquire a greater technical knowledge of their profession. And we may be pardoned for expressing the belief that in part, at least, this is due to the admonitory course pursued by this paper. For it is in evidence that hardly a month passes without our receiving information notifying us of the appointment of one or another of our agents to positions of greater responsibility along the line of promotion. It would appear, therefore, that the experience gained in representing this journal and of coming under its influence makes for better things. Our agents in all parts of the country now embrace a fine body of men, including superintendents, managers, chief operators and a large number of operators, many of the latter of whom are well qualified to occupy more important places, and to whom doubtless suitable reward will sooner or later be extended.

Wireless Telegraphy on Shipboard.

Fresh interest has been aroused in wireless telegraphy by the successful tests recently made from going and coming trans-Atlantic steamships of the transmission of messages to the coasts of Ireland and England, covering distances of from forty to sixty miles and under all conditions of weather. These practical demonstrations of the feasibility of sure communication with the shore by vessels out of sight of land, suggests many interesting features possible in this science, applicable alike to commercial and to naval purposes.

The results achieved have been of a character to awaken a greater attention to the system of wireless telegraphy in this country, and the subject in its various aspects is receiving more serious consideration, especially by maritime interests, than at any previous time. The possibility of its adoption for the earlier announcement of the arrival of steamers and of the establishing in connection therewith offshore signal stations along the coast, notably at Sable Islands, near Nova Scotia, that being the point of separation, west and south, for incoming steamers, and of utilizing as far as may be light ships for the purpose, is being mooted.

While as yet but few vessels have been fitted with the necessary instruments for the exercise of wireless telegraphy, and these but for experimental purposes, it seems probable that the near future will witness many others so equipped, both on the ocean and the Great Lakes, as the system develops and demonstrates its use and worth. The real question that confronts steamship companies in this connection is whether it will pay them to maintain this system on board their ships and to employ expert telegraph operators for its execution. If so, the further question of whether the steamship of the future will number among its officers a chief telegraph operator, will not be without interest.

The cable repair steamer Minia sailed from Halifax, May 1, to repair a broken Western Union cable in mid-ocean. One end of the broken cable was secured on May 16, and the other on June 1, in a depth of 15,000 feet. The cable was spliced in a few hours after the second end was found. It is claimed that this establishes a record for deep sea repairing.

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Women in the British Post and Telegraph Office.

It is probable that women have always been included among the employees of the post-office. The writer can remember when the head of the post-office in the great town of Sheffield was a woman, and when there was a "postmistress" of Gibraltar. The post-office sometimes "runs in families," and cases are not infrequent where a postmaster is succeeded by his widow, or daughter, or other female relative. For the most part, such cases would indicate a desire on the part of the authorities to reward long and faithful service or to exercise compassion towards dependent relatives. Not only are postmistresses fairly common in these days, but postwomen—that is, female letter-carriers—are by no means uncommon. There recently retired from the Bristol post-office a postwoman who was born in 1825, and who must have been delivering letters for the best part of sixty years. She was 72 years of age when she retired, and it is estimated that she must have walked a quarter of a million miles during her long service. Although she served a very sparsely populated district, she was never stopped nor molested in any way on her round, and it is needless to say that she gained the respect of all with whom she came in contact. The Lords of Her Majesty's Treasury, recognizing the exceptional circumstances of this woman's service, granted her half-pay in the shape of pension, and the inhabitants of her native village took the occasion of her retirement to present her with a handsome testimonial. Another postwoman in the Bristol district has just succeeded her aunt as sub-postmistress, the latter having served for forty-seven years and reached the astonishing age of 95. The niece had served for forty-two years as postwoman, so that she must be well on to 60 on taking up her new appointment. The post-office cannot be an unhealthy occupation, or its employees would not live to such abnormal ages. But there are young postwomen as well as old. We have seen the portrait of one who cannot be much above 30, and who, attired in the official overcoat and cape, with a saucy felt hat and feather, looked uncommonly smart and business-like. She is the wearer of two good-conduct badges, and appears to take her full round of duties—making two rural deliveries a day, besides meeting the trains and attending to the traveling post-office apparatus. A man could hardly do more, and some men do a great deal less. But then this woman was Scotch!

But women have invaded the higher ranks of the post-office service. This may be said to have been brought about by the acquisition of the telegraphs in 1870, when a considerable number of female telegraphists were taken over by the Post-Office from the several telegraph companies then existing. It would appear that women were first employed in telegraphy in 1853, the innovation being due to the initiative of Major-General Wylde, a director of the Electric Telegraph Company. General Wylde was in attendance on the Queen at the time, and it is said that Her Majesty expressed to him her approval of the employment of females as telegraphists. The extent to which such employment has obtained during the past forty-five years would probably be a source of surprise, as well as of gratification, to Her Majesty. At the present time the Post-Office employs not far short of 30,000 women in various capacities, and of these it is probable that the largest number are employed in telegraphy or in duties relating thereto. In London alone the number would appear to exceed 1,500, of whom no fewer than 1,000 are employed at the Central Telegraph Office in St. Martin's-le-Grand. The salaries range from 10s a week to a "girl graduate," to £300 a year to the matron who superintends the establishment, the intervening grades being those of supervisor and assistant supervisor, with salaries ranging between £100 and £200. There can be no doubt that, for all but the hardest duties and the night work, women are admirably adapted for telegraph work. They are more tractable and patient than men, and have a finer sense of touch and hearing, the latter being an indispensable qualification when so much telegraph "translation" is now done by sound, aural signals having largely displaced visual in these days of progress. All kinds of instruments are worked at the central office, and there are few, or none, which cannot be efficiently operated by a fairly-skilled female telegraphist. The writer has even seen the Hughes type-printing instrument, one of the most laborious and difficult to work, admirably operated by a young woman. Telephone work, too, is peculiarly suited to girls; and there is here a large field for female employment in the future. Not only in London, but in all the large cities—Manchester, Liverpool, Birmingham, Edinburgh, Glasgow—women are largely employed in telegraphy, and with equally satisfactory results. The romance of the telegraph has been heightened by the employment of women, and courting, and even kissing, are said to be practiced on the wires. Mr. Scudamore, whose commanding energy bestowed on the country the inestimable boon of cheap telegraphy, told in one of his early reports on the reorganization of the system how a young woman in London formed an attachment for, and became engaged to, a young man in Berlin, whom she had never seen, and how they subsequently got married, purely on the strength of a telegraphic courtship! But then, as Mr. Scudamore pointed out, "the whole world is the country of the telegraphist. Sitting at one end of a wire, no matter what its length, he converses as easily with the operator at the other end as if he were in the same room with him. Strange as it may seem, he knows by the way in which the operator at the other end of the wire does his work whether he is passionate or sulky, cheerful or dull, sanguine or phlegmatic, ill-natured or good-natured. He soon forms an acquaintance with him, chats with him in the intervals of work, and becomes as much his companion as if he were working face to face with him." What more can an amorous couple require than this?—unless it be an exchange of photographs; for the telegraph has not yet achieved the transmission of likenesses, although in the fac-simile telegraph we have a close approximation to such a result.

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Quitting the region of romance, it may be noted that young women of the class from which telegraphists are drawn are largely employed as counter-clerks or "counter-women" at the various branch post-offices in London and other large towns. If it be remembered that a post-office clerk nowadays has to be something of a banker, an insurance agent, a parcel receiver, as well as a stamp-seller and an interpreter of the Postal Guide, with its 500 odd pages, it will be seen that the department has great faith in the capacity of women for the performance of the most exacting duties. Such faith has, apparently, not been misplaced, for women are being employed in increasing numbers at post-office counters, and the work, it would seem, is neither too intricate nor too exacting for them. Time was when the public, or some portion of it, made rather a stand against the female post-office clerk, and when the comic journals delighted to expose her flirtations and frivolities from week to week. But it is much more dangerous to flirt across a post-office counter than through a telegraph wire between London and Berlin unless the wire happens to be "milked" by some inquisitive person en route. Somehow, the comic man was never very happy in his hits at the post-office girl, and it is now a recognized thing that certain post-offices shall be served by women, and very well served, too.

But a still higher development of female labor has taken place in the Post-Office since the acquisition of the telegraphs. The great account branches of the department have called in the aid of the woman clerk to such an extent that it is doubtful whether they may not one day outnumber the men employed. Thus, in the Accountant-General's department, where a total of more than eighteen hundred persons are employed, more than six hundred are women. These latter are employed in two separate branches—namely, the Postal-order branch and the Clearing House branch, and the salaries range from 12s a week for sorters to £400 a year for superintendents, the intermediate classes being clerks, principal clerks and assistant superintendents. The work in the Clearing House branch is wholly connected with the telegraphs, and is largely taken up with the bringing to account of press telegrams, sent without prepayment, and the making out of accounts against the various newspapers on whose behalf they are transmitted. This is a more or less complicated class of work, but it is performed with perfect efficiency by the two hundred or so women clerks employed in it. The term "Clearing House" is no doubt a survival from telegraph days, that being the designation given by the old companies to what is known in the Post-Office as the "Message Branch." The Postal-order branch, although of more recent date, employs twice the number of persons employed in the Clearing House branch, a large army of "sorters" accounting for most of the difference between the two establishments. It is clear that much sorting must be required when millions of orders have to be placed away in pigeon-holes, regard being had not simply to the amount of the order, but to its number and cipher as well. The facility with which orders can mostly be traced is the best evidence of the care with which the work is done by the women sorters employed upon it. Last year upward of 67,000,000 of orders were issued, representing a total value only a trifle less than 25,000,000 sterling.

It is in the Savings Bank Department that the most extensive employment of female labor is to be found, the establishment for the current year exceeding a thousand persons, and nearly equaling that of the male branch of the office. A new feature is to be found in this year's list—namely, "girl clerks," of whom a total of sixty contrasts with one hundred and fifteen boy clerks. There are upward of two hundred sorters and six hundred second-class clerks, the establishment being completed by first-class clerks, principal clerks, assistant superintendents of two grades, and a superintendent who rises to the princely maximum of £450 a year. We wonder if a sorter or a girl clerk carries a superintendent's baton in her pocket, because, if so, there would be the splendid leap from about £30 a year to the princely amount just mentioned. It is not difficult to understand that there must be much work in the Savings Bank Department exactly suited to the female capacity and the female love for order and precision. Millions of documents have to be dealt with in the course of the year—acknowledgments for sums deposited, warrants for sums to be withdrawn, declarations of various kinds, and a host of forms which is positively bewildering. Most of these, no doubt, pass through female hands, and probably also some of the ledgers are posted by the more experienced women. The odd thing is that, of all the millions deposited and withdrawn during the year, not a penny enters or leaves the building in Queen Victoria street known as the Central Savings Bank, which is simply an office of account. The money is dealt with by the postmasters throughout the country, and here again the female element comes in, many postmasters' assistants being women.

It remains only to notice one other branch of the service—the Returned Letter Office, where women are employed in any numbers. Here about fifty persons are engaged in the work of returning "dead" or derelict letters to their senders, an operation requiring care and confidence, but no great skill. Hence the salaries only run from 14s a week in the case of a "returner" to £170 a year in the case of the superintendent. This office used to be called the "Dead Letter Office," and is so called by many old-fashioned persons to this day. But the women clerks have never known it by this designation, as their employment in this branch of the service is of comparatively recent date.

Only one great department—the Money-order Office—has escaped the female invasion so far. But the fiat has gone forth, and henceforward money-orders, like postal-orders, will be sorted by female hands instead of by male. The Money-order Office is a comparatively small establishment, and it is understood that a small contingent of women clerks drawn from other branches will inaugurate the era of female labor there. By and by, no doubt, a proportionate number of women clerks

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will be borne on this establishment, as in the other great branches of the office.

One department we had very nearly missed—the Medical Department. Even here women are employed, there being a female medical officer and an assistant female medical officer. There is also, unless we are mistaken, a lady doctor at Manchester. It was Mr. Fawcett, when he was postmaster-general, who introduced women into this department, and the large number of females employed in London would seem to afford an ample justification for this course.

We have thus seen how enormously the employment of women by the Post-Office has increased since the acquisition of the telegraphic service in 1870. It has spread into nearly every branch of the service, not even excepting the secretary's office, where it is understood that women typists are employed; and it is probable that the solicitor's office is the only one which has escaped the invasion of the "monstrous regiment of women." Women solicitors are not yet an accomplished fact, but they will come in time no doubt. It would seem, too, that the example of the Post-Office has spread to other departments of the Civil Service, the Inland Revenue establishment showing a number of "female assistants" in the office of the Controller of Stamps and Stores, and a number of "female tellers" in the Stamping Department. The Customs is more modest, only figuring for a few women typists at the present moment; and this is probably the extent to which most other government offices are committed to the "forward movement" so far. Even the Treasury, it is understood, has its women typists, so that "My Lords" will be able to judge for themselves as to the value of female labor in the public service.

Appointments in all branches are eagerly sought after, and the number of female candidates attending the competitions held from time to time is enormous. From twenty to thirty candidates per vacancy is a not uncommon proportion in the more important competitions, and a severe training must be gone through before a candidate has the smallest chance of success. "Cramming" has to be done by women as systematically as by men before the ordeal appointed by the Civil Service Commissioners can be successfully faced; and the "Civil Service factories," as the crammers' establishments have been rather cleverly, if cynically, described, are almost as full of one sex as of the other. Whether the best material is obtained in this way is a matter beyond the scope of this article, although it is a point which has engaged attention in the recent past, and will be increasingly debated in the near future. Let it suffice for the present to say that the material turned out so far has been found sufficient for its purpose, and that the Civil Service sieve is not too narrow in the mesh, having regard to the enormous number of persons anxious to get through it.

It would be idle to speculate whether the increased employment of women in the public service is due to considerations of policy, of philanthropy, or of parsimony. It is a great fact, and it will remain so long as there is simple, useful work to be done, which can be as well, or better, done by women than by men.—Chambers' Journal.

A Hot Weather Episode.

A young man telegrapher in the West and a young lady manipulator of dots and dashes in a neighboring city, had a genuine scrap over the wires on one of the recent hot days. The young man became so excited over the affair that determining on vengeance he took the first train for the home of his opponent. On arriving at the telegraph office at his point of destination, he excitedly asked for his recent adversary. When confronted by a pretty young lady he was somewhat taken back, but soon recovered himself and said:

"I thought you were a man, and I came here with the intention of taking a few punches at you!"

"All right, punch away!" the pretty young lady nonchalantly replied. The young man's equilibrium was immediately lost again; he offered a hasty explanatory opology, which was accepted, and then made a flying start for home.

A great deal of food for reflection—more than they need these dog-days—has been supplied the two contestants by this impulsive young man's hasty trip, and it is pretty safe to conjecture that they will both laugh many a time over the unique occurrence.

It is needless almost to add that the young lady is kept busy denying that she has aspirations for pugilistic honors in the female field or elsewhere.

The trouble was occasioned over a message of market quotations, and his office associates were uncharitable enough to presume that the young man's expectations were not realized on a certain cereal, and that this, coupled with the extremely hot weather, caused him to lose his temper, several hours of valuable time and a certain portion of his prestige.

The pretty young lady was not to be bluffed; so he could not vent his spleen on her and it is safe to presume that she returned any compliments he may have offered her over the wire.

PACIFIC CABLE.—A dispatch from London says: In the House of Commons J. Austen Chamberlain, Financial Secretary to the Treasury, detailing the progress of the Pacific cable, said that several sectional cable houses had already been sent out, and were being erected at the various landing places. The survey had been satisfactorily completed over 1,500 miles of the proposed route, and the manufacture of cable had already begun. Mr. Chamberlain said landing sites had been selected in Queensland, New Zealand, Norfolk Island and at Vancover, and that the cable board was satisfied as to the ability of the contractors to complete the work by the end of 1902.

Every telegrapher who loves his profession, who is determined to master its technicalities, and thus insure for himself the confidence and respect of his official superiors and place himself in the direct line of promotion, should subscribe for TELEGRAPH AGE.

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Telegraphers Mutual Benefit Association.

Assessments 381 and 382 have been levied to meet the claims arising from the deaths of Joseph S. McGlathery, at Mobile, Ala.; Charles B. Leek, at Ashtabula, O.; William C. Daley, at Baltimore, Md.; Harry C. Bliss, at Bangor, Me.; Hettie A. Humphreys, at Carson City, Nev.; John U. Ansley, at Augusta, Ga.; Fred T. Meyer, at Brooklyn, N. Y., and Daniel P. Hartley, at Batesburg, S. C.

The mortality experienced during the present fiscal year is the heaviest in the history of the association. The total number of deaths reported to date is larger than that of any full year since organization, and to meet claims arising from same the executive committee has deemed it advisable to call an extra assessment for the month of August, 1901.

During the year three of the charter members passed away, and of the remaining deaths fifty per cent. show a membership of more than twenty years.

This statement strikingly illustrates the care and attention which has always been given to the selection of applicants for membership, and is the most potent reason why the cost of the insurance has always been so moderate.

Members are again reminded that it largely devolves on themselves to keep the cost of the insurance well within the limit fixed by the by-laws, by bringing the merits and benefits of the association to the attention of all eligible persons, to the end that by a substantial increased membership the ratio of deaths may be kept normal.

Subterranean Telephoning.

The success that has attended the laying of the subterranean telegraph cable between London and Birmingham, a distance of 113 miles, has prompted the postal authorities to utilize the cable for telephoning. This is considered to mark the limit of underground telephoning with the existing apparatus, says the Scientific American. Several of the other leading provincial towns, such as Liverpool, have petitioned the postal authorities to connect their cities with London by a direct subterranean cable, such as that running to Birmingham, but their requests have been refused until a method of transmitting underground telephonic messages over long distances is found. The British Post Office is gradually providing a reliable telephone system throughout the whole of the United Kingdom by the aid of the telegraph wires. For this purpose $10,000,000 has been authorized by Parliament, a large portion of which sum, however, is being expended upon the London telephone system, which it is expected will be partly in operation in the autumn of this year. The competition between the government and municipal telephone systems on the one side, and the National Telephone Company, which has hitherto enjoyed a monopoly, on the other side, is very keen. One town in the south of England, the first to possess a municipal telephone, has been the means of reducing the charge of the private company from $50 to $20 per annum.

The Alaskan Telegraph.

The Signal Corps of the army expect to have telegraphic communications established between the State of Washington and Sitka, the capital of Alaska, by September 1, and to aid in the work upon the lines already in progress, Major Dunwoody, the acting chief of the Signal Corps, has asked for the enlistment of about forty additional telegraph operators and linemen.

Considerable difficulty is experienced in obtaining operators to enlist in the army for service in Alaska. The department is, however, holding out the inducement of the large advantages and opportunities offered to men who go to Alaska and become familiar with the country in the great gold and copper regions.

Captain Bonnell, who is building the telegraphic line from Valdiz northward to Eagle City, is in need of more men, and as soon as he has completed his task work will be commenced on a line connecting Eagle City with Fort Hamlin.

The line from St. Michaels already extends to Fort Hamlin, and the idea is to extend the wires across to Eagle City.

The Canadian line from the latter place was expected to be opened July 15, and will probably be delayed only a short time. The cable between Juneau and Skagway will be completed this summer, and from the latter point a line will connect with the Canadian telegraph, and thus communication will be established between Washington and Sitka, the capital of Alaska.

Picture Telegraphy.

Many attempts, more or less successful, have been made to transmit pictures through a telegraph line, says the London Electrical Review. Elisha Gray and others have used the writing telegraph to make facsimile drawings at a distance, and Sczepanik has devised an apparatus intended to enable us to actually see by telegraph, but this apparatus is complicated, and has not as yet been practically successful. Quite recently Herr Otto von Bronk has devised a simple and ingenious apparatus for printing at the receiver a photograph of any illuminated object placed in front of a lens at the transmitter. Herr von Bronk makes use of the wonderful susceptibility of steel wires to magnetic strain, utilized by Poulsen in his telegraphone. The image or the object is thrown by a photographic lens on a surface made up of a mosaic of selenium cells. Each cell is in circuit with one of a series of electromagnets arranged so as to produce transverse magnetic strains in a ring of steel wire, each strain being, of course, proportional to the intensity of light acting on its corresponding selenium cell. These strains are reproduced on a similar ring at the receiving station by a synchronous rotating arm, just as a telegraphone record would be copied on to another wire moving at the same speed. By reversing the original operation, the magnetic copy of the picture is re-translated into an optical one, a photographic negative being produced.

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A Telegraphic Wooing.

Tom Walton was very much surprised at finding himself deeply in love with a girl whose name he did not even know. It happened in this way. Tom was a telegraph operator in the city, but lived in a small suburban town. As he sat in the train one morning on his way in to work he noticed among the passengers who boarded the train at one of the stations a beautiful girl who entered his car and took the seat directly in front of his. The morning paper had no further interest for Tom that day. All the way in to town he sat watching the girl in front of him. I shall not attempt to describe her. Tom says she is the most beautiful girl he ever saw. Of course he is prejudiced, but I must admit that I have only seen one girl who surpassed her. However, that has nothing to do with my story.

What impressed by friend even more than her beauty was her extreme modesty—not the timid, fluttering kind of modesty, which is so easily imitated by the heartless coquette, but the strong, self-reliant kind, which makes men keep their distance. She did not shrink from the admiring glances bestowed upon her by every man in the car; neither did she encourage them. She simply ignored them. A man who would attempt to flirt with such a girl must either be a fool or be gifted with unlimited assurance. Tom was neither; so he contented himself with admiring her in silence.

Week after week went on, and each day found poor Tom more and more deeply in love. The unconscious object of his admiration traveled on the same train every day. Sometimes she sat near him, and his eyes nearly devoured her wonderful beauty. At other times she sat at the other end of the car, where he could only catch occasional glimpses of her past the heads of his fellow passengers. One day he made a great discovery. Her name was Helen. He had heard a girl friend call her so. That night Tom sat up until 3 o'clock, writing love letters to Helen, and tearing them up as fast as he wrote them.

The next morning Helen again occupied the seat just in front of Tom. He sat gazing at her and building castles in the air. Presently his mind turned to the love letters he had been writing, and he began to frame a new one. As he mused, he idly fingered the window catch, which made a clicking sound similar to that of a telegraph instrument. Unconsciously he spelled out the words of the letter.

"Dearest Helen," ran the message, "I love you dearly. Say you will be mine and—" but he got no further, for suddenly the girl turned in her seat and looked him full in the face, her eyes blazing with indignation. Then she turned back and, seizing the catch on her window, clicked out the reply:

"How dare you?"

Tom was completely dumbfounded. He felt like jumping out of the window and ending his miserable existence. He reflected, however, that such a rash proceeding would do him no good and might possibly wound the feelings of the young lady. Moreover, his first duty was to apologize. Of course it would not do any good. She would never have anything to do with such an idiot as he had shown himself to be. Still he could not well leave matters as they were, so he again reached for the window catch.

"I beg your pardon," clicked the improvised key.

"Your insolence is unpardonable," was the reply.

"But let me explain. I did not know—"

"I don't care to hear your explanation."

Just then the train pulled into the station and the offended girl left the car without so much as looking back.

Tom went to his work with a heavy heart. He could think of nothing else all day but the stupid blunder which had destroyed all possibility of his ever winning the heart of the fair telegraph operator.

On the following morning he took an earlier train than usual in order to avoid meeting the fair Helen. But he had not reckoned on the fact that she might also wish to avoid him. This was the case, however, and Tom was somewhat startled when he saw her enter the car. There was only one seat vacant, and that was just in front of the unhappy young man. It seemed as though the fates had conspired to bring these two people together. The longer Tom pondered the matter, the more he saw the hand of destiny in this matter, and he decided to make one more effort to obtain forgiveness. Reaching for the window catch he sent the following message:

"I'm awfully sorry I offended you yesterday."

There was no answer, and the young man continued:

"I had no idea you understood me; I unconsciously telegraphed what was passing in my mind."

Still no answer.

"If you don't forgive me I shall be miserable for life."

At last the answer came:

"Please stop. You are attracting everybody's attention."

"Then let me come and tell you how sorry I am."

After a long pause the girl answered; "You may come."

Tom's heart leaped with joy as the window catch clicked out these words. He lost no time in accepting the invitation, and it was not long before he had persuaded her to forgive his foolish conduct of the day before.

After that he met her every day on the train, and their acquaintance soon ripened into sincere friendship on the part of the young lady. As for Tom, his feelings had long ago got beyond that stage. They talked of many things during their daily rides to the city, but for a long time they both avoided all mention of the episode which led to their acquaintance.

One day, however, Tom said: "Do you remember the message I sent you by the window catch?"

"Of course I do," replied his companion, looking out of the window to hide her blushes. "How could I forget such a piece of impertinence?"

"I know it was impertinent, and idiotic, and all

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that," replied Tom. "But still, if it had not been for that, I should never have known you; so I am not at all sorry. Are you?"

"How can you ask such a question? Haven't I forgiven you long ago?"

"Yes, but forgiveness is not enough."

"Not enough!"

"No. I want something more. I—you know—well, the fact is, I—I meant every word of that message, Helen. Tell me, if I should repeat that message now, what would your answer be?"

Still looking out at the flying landscape, Helen placed her dainty finger on the window catch.

"Click, click, click, click." Tom's heart was in his throat as he heard the instrument click her answer, "Yes."—Isaac Anderson, in San Francisco Post.

Officials Graduated from the Ranks.

An examination of the "Biographical Directory of Railroad Officials," with especial reference to the course through which the officers named therein have attained their present positions, reveals the fact that the operating department appears to present the greatest number of successful careers. There are approximately 5,000 names mentioned in the directory. Under a classification which includes in the operating department, telegraph operators, clerks, brakemen and shop men, there appear to be over 1,700, or over one-fourth of the whole, who have entered the service in the department, and by far the largest portion of these, or over 600, began as telegraph operators. There are also now filling places at the heads of their department, 166 who began as brakemen, and 62 who were originally firemen; about 400 who began as mechanics in the shops, and over 200 who were laborers. The general office and accounting department furnished about 1,100, the engineering department 900, and the various clerical and subordinate positions in the traffic department about 850.

The International Association of Municipal Electricians.

An electrical engineer of international reputation, whose name is withheld for the present, has agreed to prepare a paper to be read at the sixth annual convention of the International Association of Municipal Electricians, to be held at Niagara Falls, N. Y., September 2, 3 and 4, 1901, on "The Advisability of Placing High and Low Potential Wires or Cables in the Same Series of Conduits or Through the Same Manholes." This is a live subject, and will present an interesting and timely topic.

Arrangements are nearly completed whereby the new Edison storage battery and the new Stowager storage battery, of Rochester, will be exhibited for the first time.

The New York party, which will number 100 or more, will leave New York on Sunday, September 1, at 7.30 P. M. F. C. Mason, superintendent of the police telegraph, Brooklyn, N. Y., has the matter in charge.

Organizers of the Old Time Telegraphers' Association.

Editor TELEGRAPH AGE:

As you are a friend to the forty-niners of the telegraph, will you please publish the addresses of those now living of the seventeen persons named herewith, who assisted in organizing the Old Time Telegraphers' Association at Cincinnati, O., September 7, 1880, as follows: G. E. Allen, E. C. Armstrong, Martin Barth, N. M. Booth, E. C. Bush, J. W. Chapin, W. G. Fuller, N. Hucker, F. C. Jones, T. H. Logan, W. H. Markle, J. Patrick, J. D. Reid, J. A. Townsend, M. J. Waldon, G. T. Williams and J. J. S. Wilson.

N. M. BOOTH.

Evansville, Ind., July 19.

[The only members now living of the original seventeen named above as organizers of the Old Time Telegraphers' Association are G. E. Allen, Utica, N. Y.; Martin Barth, Westmoreland, Tenn.; our correspondent, N. M. Booth, Evansville, Ind.; W. G. Fuller, Gallipolis, O.; Nathaniel Hucker, Buffalo, N. Y.; J. A. Townsend, Dunkirk, N. Y.; G. T. Williams, Cleveland, O.—Editor.]

New Code Language.

The International Telegraph Conference, to be held in London, England, next year, will doubtless prove to be of special importance to telegraph administrations and the public.

According to the list of "Propositions pour la Conference," issued by the Berne office, the British Government will propose a modification of Article IX of the regulations which prohibits "the employment of groups of letters having a secret meaning." It will also be submitted that the transmission of groups formed by vowels and consonants conveniently combined will be simpler than the words of the official vocabulary.

This will doubtless be found a step in the right direction if the two classes of letters are associated with two classes of signals of the international Morse alphabet, or otherwise systematically combined with one class or other of those signals in a preconcerted manner, as profusely illustrated in Mr. Nicolson's booklet, "Telegraphic Signals and International Code Vocabularies, Classification of Signals, Etc.," New York and Glasgow, 1897. We formerly offered this important work at a dollar; a few copies are left, which may be obtained at the same rate, and which will be sent on receipt of price to any address in the United States or Canada, all charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

FRENCH CABLES IN INDO-CHINA.—A Paris paper states that the French are laying a cable from Amoy to Thuanan, in Indo-China. Later they will lay another cable from Amoy to Vladivostock, which will enable the transmission of messages between France and Indo-China, by way of the Siberian and Danish lines, thus avoiding the British and German cables. It is the desire of the French government to establish telegraphic and cable service all over the world, under its own control, and free from the supervision of other governments.

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LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

ST. LOUIS, MO., POSTAL.

Owing to the promotion of Mr. B. P. Hancock to a position in Chicago, who leaves many friends in St. Louis, the personnel of the St. Louis chiefs is now as follows: C. F. Bartlett, chief operator; T. J. Irwin, assistant chief operator; T. E. Bastable, traffic chief; G. C. Goodwin, assistant traffic chief; T. P. Wheeler, night chief operator; T. M. Skinner, night traffic chief; T. J. Neiderweiser, late night chief.

Miss Matilda Genevieve Seeger, of St. Louis Postal, and Mr. Patrick J. Shea, of the Cella Commission Co., of St. Louis, Mo., were married in Chicago, Ill., July 10.

Miss De Esta Conrad, manager of the St. Louis Cotton Exchange office, is spending a month in Ohio.

Miss Carrie Spencer, manager of the Wainwright Building office, is spending a week on the lakes.

Miss Clara Ellersieck is visiting relatives in the Ozarks; E. L. Dougherty is also in the same region.

Mr. T. P. Wheeler is visiting relatives in Walnut, Kas.

Mr. John Welch, of Nashville, Tenn., paid us a short visit.

NEW ORLEANS, LA., WESTERN UNION.

Mr. J. Powers, late night operator at the Southern Pacific ferry landing office, resigned to accept the chief clerkship to J. K. Ridgely, division passenger agent of the Louisville & Nashville Railroad.

Mr. R. L. McKibbin, a well-known telegrapher, late city passenger agent of the Louisville & Nashville Railroad, has resigned; also Mr. Walker, chief clerk to John Kilkeny, former division passenger agent.

Mr. Geo. Glynn has resigned from the check force, and accepted a position as operator with the Ocean Towboat Telegraph Co. Young Glynn has best wishes of his many friends.

Managers Cummings, of Jackson, Miss.; Lundy, of Ocean Springs, Miss., and McMurchy, of Baton Rouge, La., were recent visitors. Late arrivals: Messrs. J. T. Dearman, M. M. Lott, T. D. Ford, W. A. Relf.

Mr. S. W. Capers is on the extra list.

Mr. O. M. Donovan is now manager at Hattiesburg, Miss.

Mr. Louis Tognoni has resigned from the clerical force to accept the managership at Poplarville, Miss.

CHICAGO, ILL., WESTERN UNION.

Louis M. Saddler, for the past thirteen years manager at Kankakee, Ill., died after a short illness with kidney trouble, July 5. Mr. Saddler was well known in the Chicago office, and his many friends mourn his loss. He was born at Loraine, Germany, and was 34 years of age.

Mr. A. R. Jones, formerly operator at Kankakee, is acting as temporary manager.

L. B. Allen, for the past eight years manager at Aurora, Ill., died suddenly on June 26. A widow and one child survive him. His position has been filled by Mr. McDermett.

Burglars made an attempt to despoil Newt Crittenton of some of his personal property the other night, but he courageously lighted a match, whereupon the intruders disappeared.

A death claim of $1,000 was paid promptly to the widow of John P. Jamieson, deceased, on June 22, by Ohm Court No. 673, C. O. F., National Union.

Mr. Ray F. Finley, late of the Western Union force of Kansas City, Mo., made us a call on July 16, while on his way to the new position he has accepted with the Long Distance Telephone Co., at Maumee, O.

Mr. A. J. McGrath and wife were rusticating recently in Minnesota.

Mr. Copeland has gone to Denver, Col., with his family for an outing.

Mr. Thomas Hanley and Miss Bertha Armitage were married at Montreal, July 9. Congratulations and good wishes are expressed by all.

WACO, TEX., WESTERN UNION.

After two years of arduous campaigning in the Philippine Islands as commander of Company E, Fortieth Infantry, U. S. Volunteers, Captain Wm. McK. Lambdin, of Waco, Tex., is at home, and is receiving the congratulations of his many friends.

Captain Lambdin returns with a military record of the very best, his discharge reciting thirteen engagements in different parts of the archipelago, one of which was a bloody hand to hand conflict with an immensely superior force of the enemy, and which probably stands without a counterpart in the annals of the insular hostilities, Captain Lambdin losing seven men in a less number of minutes, he himself,

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revolver in hand, assisting in repelling the Filipino attack. In this engagement the enemy's force was almost annihilated.

As demonstrative of the courage and determination of Captain Lambdin and his men, it is a noticeable fact that his company lost nine killed and fifteen wounded out of a numerical strength of 106 men, a larger percentage of loss than was sustained by any other company of the same regiment.

The fraternity will remember Captain Lambdin as a crackerjack operator, at one time with the Western Union at Waco, Tex., and various other points, and later as manager for the Postal at the same place, and will be proud of his military achievements.

Captain Lambdin was frequently given favorable mention in the reports of his departmental commander, and the skill with which he maneuvered his men attracted the attention of General Shafter at the Presidio in San Francisco, therefore it is very probable that he will soon bear a commission in the permanent military establishment.

The personnel of this office is as follows: H. L. Henderson, manager; S. M. Renick, chief operator; W. Gaines Sparks, night chief operator; Messrs. W. D. Lessing and J. M. Clement, day operators; Mrs. E. L. Boutz, split trick. Clerks—Mr. A. B. Kelly, Misses Nellie Hackett and Birdie McCorkle.

The American District Telegraph service has recently been installed here, and is keeping a force of five messenger boys busy.

Mrs. E. L. Boutz has been ill for some weeks with a malarial attack, but is now convalescent, and expects to be back to her table at an early date.

Mr. Walter Sparks is doing the telegraphing on the Logan wire, with Mr. C. E. Stetler filling the same position for the Christi people, while at the pool room, Mr. Fred Boutz is looking after the race wire.

Mr. A. E. Gehrig is the efficient lineman and electrician for this office.

Mr. J. Render Read, an operator from Alabama, is visiting relatives here.

PHILADELPHIA, PA., POSTAL.

The great increase in the market business during the early morning hours has caused a number of additions to be made on the early trick, and the creation of an entirely new trick, namely, the all-night trick, from 12 to 8 A. M. Mr. Horace Holtzinger has been assigned to duty for these hours. Mr. Samuel Higo moved from 6 A. M. to 5.30 A. M., and Jay A. Thomas added to the 6 A. M. force. Other additions were made at 6.30 and 7 A. M.

Chief Operator C. A. Stimpson and Wire Chief Miles Dunn reported several mornings at 6 o'clock in order to personally acquaint themselves with the condition of wires and the movement of business in the new Delaware, Maryland and Virginia district. New wires are being strung, which will greatly facilitate matters.

It looks as though vacation privileges will be at a premium this summer. The regular force is so thinned out that night men and outsiders have been ordered on daily. Good men are in demand, and the force earning lots of compulsory extra. Quite a number have been compelled to lay off on account of illness, among them Wire Chief Frank Holtzinger, H. P. Ruffee, Jacob Lemish and Philip Sherwood.

Arrivals: Messrs. Wm. M. Anderson, from a branch office; L. S. Miller, from the Western Union; Miss M. Atkinson, from the Western Union, Germantown, office; E. H. Baker, from the Postal, Germantown, office; H. A. Crosson, from the American District Telegraph; L. N. Merrick, Pittsburg, Pa.; Wm. S. Mecke, Harrisburg, Pa.; M. L. Schwinger, New York city; Jas. F. Houghton and Harry Tracy, from the Philadelphia & Reading Railway; Richard Sterling, from the Western Union; T. F. Hannigan and E. J. Smith.

Much sympathy is felt for our friend Bud. Gagen, at a broker's office, who almost immediately after being called home on account of his mother's illness was again sent for on account of the illness of his young son, reaching whom only to find him dead.

Mr. H. Nauer, formerly at the newspaper overflow office on South Eighth street, is now with a broker.

The night force are being worked to their utmost capacity; business is good.

BOSTON, MASS., POSTAL.

Mr. Frank C. Frazee, of the Globe force, was a member of the class of 1901 at the Boston University Law School, and received his degree a few weeks ago. Mr. Frazee will resign his position soon to practice law in Baldwinsville, N. Y., his home.

Miss Hattie Cameron,who formerly worked the Broad street wire, was recently married to Mr. Clarke.

Senator J. B. Clancy has returned to his position as manager at the Chamber of Commerce, the State Senate having adjourned. Mr. J. D. McDonald, who was acting manager during Mr. Clancy's absence, has returned to the main office.

Mr. H. J. Finn has been transferred to the 3 A. M. night trick, working the Chicago wire.

Assistant Night Chief J. A. Coughlin has a son.

Mr. N. H. Tracey has returned to his duties at the Globe, after a month spent with the Harvard crew at Gales Ferry, Conn.

Mr. J. M. Kenney has been appointed operator at Clark's Hotel, vice T. F. Carey, resigned.

Mr. William Manning has been assigned to the Court Square office, vice James Keough, transferred to the main office.

Resigned: Messrs. C. H. Labonta, A. B. Palmer, W. E. Dickinson, Thos. F. Carey.

ANACONDA, MONT., WESTERN UNION.

The personnel of this office is as follows: James Gibbs Davies, manager; Mrs. James Gibbs Davies, bookkeeper; A. A. Bright, night operator for Western Union Telegraph Company, at Standard office; Mr. Edward C. Danforth handling The Associated Press for the Standard; Fred Davidson, messenger.

The American District Telegraph Company will install their service here within the next two or three months.

Mr. Charles Chapman looks out for the interests

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of the Western Union Telegraph Company in our branch office at the Anaconda Copper Mining Company's office.

Mr. J. C. Derks, former operator at the Standard office, has recently been promoted to the telegraph editorship on that paper.

PHILADELPHIA, PA., WESTERN UNION.

Mr. J. D. King, a well known operator of Cape Charles, Va., was on July 15 appointed chief train dispatcher of the New York, Philadelphia and Norfolk railroad. The appointment is a gratifying one to Mr. King's hosts of friends, and especially so to the train dispatchers and operators on the division, by whom he is well liked. Merit and faithfulness is sure to have its reward and Mr. King's elevation to this important position is the natural outcome of the same. We heartily congratulate and wish him still further prosperity and honor.

Messrs. Pennypacker and Brenckman were sent to Camp Egbert at Perkasie, Pa., to handle press matter, of which there was an abundance.

Western Union messenger No. 48, whose name is Joseph McCann, is a boy of sterling character and honesty. He recently found a wallet containing $850. He discovered the owner, to whom he returned the pocketbook and contents intact. He was rewarded with a sum of money and a ton of coal.

Some years ago, printer C. B. Wood took out an endowment policy while in England. After leaving that country he neglected the matter, the policy apparently lapsed and the transaction was entirely obliterated from his mind until recently, when a letter from the London company apprised him of the fact that they held for him, subject to the surrender of the policy, quite a sum of money which had accumulated on what premiums he had paid before he left England. Mr. Wood put himself immediately in communication with the Insurance Co., and is now in daily anticipation of a check.

Owing to the unusually heavy business a good many of the day and night men are doing double work.

In consequence of the heavy night work at the switchboard Messrs. Webb and Potteiger have been given an assistant in the person of W. C. Shugar.

CLEVELAND, O., WESTERN UNION.

Mr. F. C. Hackett, formerly chief operator at Toledo, has been transferred to same position at Cleveland, vice L. G. Seibel, who has resigned to take charge of the electrical department.

A number of new names appear on the roll. Among them are Messrs. Sprence from Houghton, Mich.; L. A. Stockwell from the Postal, Cleveland, and R. B. Carney and C. L. Chapman.

Shappart Lindsley and Miss Ryan are on vacation.

MONTREAL, QUE., CANADIAN PACIFIC.

We are now in the midst of the usual summer rush; every wire is taxed to its utmost capacity, and the "Wolves" are happy.

Some of the men and many of the ladies are substitute hunting, but their task does not appear to be an easy one, as there is a scarcity of operators in this vicinity at present. The continuous hot spell makes us all feel like taking a vacation.

Superintendent A. W. Barber, of Toronto, who has been on a visit here, has left for the East.

Mr. Walter Barclay is representing this company at Beaconsfield, and Mr. James Quelch is doing likewise at Dorval, during the yacht races.

Mr. W. J. Morrisette, manager at Halifax, N. S., is here on a visit.

Dr. Stirling Morrison was a recent visitor.

Master Geo. Rivet has accepted a position as junior clerk with the Canadian Pacific Railway ticket office, St. James street.

Miss Nellie Massey is on the sick list.

Among those who have recently gone over to the Great North Western are Messrs. H. Keating, Thomas Massey and D. Dungan.

Arrivals: Messrs. J. P. Downey, W. J. McLaughlin and J. Mathews.

Resigned: Messrs. O. M. Young and E. C. Hartford. The former has accepted a position with a Quebec broker, and the latter has left for Toronto. Mr. Arthur Hutchison has also left for Ottawa.

The closing of Rattes' office has put Mr. W. J. Elwell out of business.

Mr. Harry Forsythe, of the superintendent's office, contemplates taking a trip to Buffalo.

NEW YORK, WESTERN UNION.

Mr. David R. Downer, a former assistant manager of this office, was a recent caller.

Mr. John M. Moffatt, at one time a chief operator, and secretary of the New York Telegraphers' Aid Society, is seriously ill at his home, Dunmore, Pa.

Mr. John Rathbone has fully recovered from trouble with his eyes and has returned to work.

Mr. Charles S. Pike, of this office, has charge of the New Jersey State Camp office at Sea Girt, N. J., during the encampment of the militia.

Mr. F. O. Nourse is acting as assistant manager

How's This?

We offer One Hundred Dollars Reward for any case of Catarrh that cannot be cured by Hall's Catarrh Cure.

F. J. CHENEY & CO., Props., Toledo, O.

We, the undersigned, have known F. J. Cheney for the last 15 years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by his firm.

WEST & TRUAX, Wholesale Druggists, Toledo, O.
WALDING, KINNAN & MARVIN, Wholesale Druggists, Toledo, O.

Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price 75c. per bottle. Sold by all Druggists. Testimonials free.

Hall's Family Pills are the best.

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during the absence of Mr. Thomas M. Brennan, who is on his vacation.

Messrs. J. A. Bates, W. J. Evans, P. J. Purfield, S. V. Richart, H. M. Herrington and C. E. Loops were sent to Pittsfield, Mass., to help out on the report of the noted Fosburgh murder case.

On vacation: Miss M. C. Donovan, E. F. Welsh, C. C. Lever, L. W. Sitzenstatter, H. M. Stiles, A. G. Trulan, T. W. Donovan, T. Girault, J. F. Moran.

Resignations: M. J. Welsh, J. K. Thrower, J. P. Rohling, A. M. Levenson, B. B. Stoddard, L. E. Westrope, F. W. Kinne, G. W. Ivory.

Appointed to waiting list: G. F. Mass, J. W. Morris, W. W. Welsh, J. L. McHale, R. J. Whitford, E. F. Stevens, H. H. Brannan, H. Lieber, J. M. Quigley, A. W. Nelson, W. R. Klitz, C. A. Beale, George Bain, M. L. Snyder, Ira Baker.

John M. Casey, aged 24 years, who for some years worked as an operator at 195 Broadway, New York, died on July 18 at Denver, Col., whither he went for the benefit of his health some months ago.

John J. Cleary, one of the most popular young operators in the Commercial News Department, died in New York on July 21.

Night Manager James C. Robinson accompanied his wife recently to Newport, R. I., his old home, where she will remain for some time for the benefit of her health.

Mr. James Dunn, formerly of this office, left for Europe July 21.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

NEW YORK, POSTAL.

An astonishing record was made recently on the Philadelphia bonus wire by A. E. Whitaker at the New York end and W. J. Furman, receiving at the Philadelphia end. Mr. Whitaker sent 102 messages in one hour, from 10 A. M. to 11 A. M. He feels confident he can beat this record by using a Twentieth Century key.

Messrs. Charles Obst, assistant traffic chief south and west; B. F. Wilson and Edward Hodnett have returned from their vacations.

Mr. Charles McCarthy, all night chief; Miss M. Crawford and Messrs. F. W. Wright and W. W. Albright are on vacation.

Mr. O. H. Davidson, late of the southern division, has been appointed to a responsible position in the U. S. Internal Revenue Department, New York city.

Messrs. M. E. McKittrick, F. Gariepy, Theo. Taylor and Geo. Baumeister have been transferred from the night to the day force; John Paul transferred to the Herald night force.

Arrivals: C. W. Brownell, Chas. Agnetti, M. J. Moran, J. M. Daly, N. E. Popp, W. J. Finn, M. B. Dudley, J. L. Kopler, Wm. Howard, H. Waldron, J. J. O'Donnell, P. O. Purcell, E. J. Moore.

NEWPORT, R. I., WESTERN UNION.

Telegraphically speaking, this is the greatest season we have seen in many years, and some believe that July was a record breaker. Certain it is the volume of business was very heavy; in fact, there was an August business in July.

The trial races between the Constitution, Columbia and Independence made between 450,000 and 500,000 words of press, necessitating reinforcements, which came from Boston in the persons of the much-liked Thomas Devine, whom all the reporters know, and the good old soul Patsey Flaherty, who has been here before in the same capacity, and is always persona grata. Flaherty was assigned to the Boston Herald wire at Brenton's Reef during the day time, with Devine on the New York Sun and Mr. M. W. Handy on the Publishers' Press. The manager, Mr. A. Waadle, had to give his attention to matters too numerous to mention, but they were each and every one handled with eminent success. For an office of this size to suddenly swell out into such immense proportions as does the Newport office at this season of the year is no easy matter for the manager to handle, but it is evident Mr. Waadle is equal to any occasion. Night manager Rowe had quite a little picnic to keep the whole push going, and that without much delay.

Those who came in from the broker offices about town and performed good service were O. E. Howard, Harvey J. Lockrow, Edward Devine, D. E. Harrington and Joseph Riley.

The regular New York Yacht Club races for the Astor Cup were sailed last week, and so take it altogether it is a very busy season at Newport; far ahead of anything ever known before in Newport for the month of July.

Mr. and Mrs. Geo. W. Brownson, who are on a visit through the East, called recently upon Manager Waadle. Mr. Brownson is chief operator at the Western Union in Kansas City.

INDIANAPOLIS, IND., WESTERN UNION.

The heavy increase in business between Indianapolis and Terre Haute office has necessitated the installation of a quadruplex between those two offices. For this purpose Mr. M. S. Allen, quad. chief of this office, went to Terre Haute July 17.

Mr. Jerry Hogan, an old employee of this office, but now of Denver, Col., was called here by the death of his mother, July 23.

The Telegraphers' Baseball Club of Cincinnati, accompanied by several other operators, were the guests of the Indianapolis telegraphers Sunday, July 21.

They were met at the train by quite a number of the home boys, who had a chartered street car awaiting their arrival to take them over the city. At noon all assembled at Banquet Hall, Fairbanks Park, where dinner for seventy-five was served. Two hours were spent in social session, during which many of the boys added to the enjoyment of the affair by singing, speech making, etc. At

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2.30 all started for Capitol City Park for the ball game. The players were: Cincinnati—Creighton, Durfus, Washington, Duffy, Gorman, Chenel, Ewald, Pons, Bell. Indianapolis—Kurz, Banty, Finan, Bannwerth, Laskey, Hamilton, Rapp, Barrett, Adams. The visitors won by a score of 13 to 11. The mercury registered 105 and how the boys played ball would have pleased any enthusiast to have witnessed the game. This entitles Cincinnati to the championship series.

Among others who were among the visitors were: W. Campbell, T. Connelly, John Duffy, A. Egan, W. J. Guynan, Augustus Renner, John Stangle, Harry Stangle. The latter acted as official photographer, and took pictures of the crowd at Fairbanks.

The Indianapolis boys, under supervision of Fred Kurz, spared nothing to add to the amusement of the visitors, and we hope to again have the pleasure of duplicating the occasion.

From all reports the visitors seem to have been well pleased in the manner they were taken care of. Indianapolis baseball team stands ready to hear from other cities who are seeking games.

Fourth of July on the Thames.

The fourth annual outing of the London, England, staff of the Commercial Cable Company took place on the Fourth of July.

A party numbering about forty left London by a special train for Reading, about 35 miles distant, and there boarded a steam launch for a trip up the River Thames. The weather was beautiful and a delightful time was spent. There was luncheon and music on board. The party landed for a short time in the beautiful woods near Pangbourne, for which the Thames is celebrated.

A formal dinner was served at the Caversham Hotel and speeches were made, and although the American ambassador, Mr. Choate, was not present, the assembly was both delighted and amused. Several members of the staff sang songs, many of their own composition, and one of them mystified the party by sleight-of-hand tricks of unusual cleverness.

It was the second day of the Henley regatta, and numerous canoes, punts, houseboats and other river craft were passed, and from all of them the American flags, which profusely decorated the Commercial launch, were heartily cheered.

The whole affair was a great success, due to the energy and excellent arrangements of Messrs. E. G. Phillips and W. M. Kent.

Old Time Telegraphers' Association.—Mr. John Brant, of New York, secretary of the Old Time Telegraphers' Association, has recently mailed to all of the members printed copies of the annual proceedings of the meetings of 1880, 1882, 1883 and 1884. On account of the death of President Garfield there was no meeting in 1881. The programme of the Montreal meeting, which will be held September 11, 12 and 13; will be issued within a week.

Train Dispatchers' Convention.

The fourteenth annual convention of the Train Dispatchers' Association of America was held in San Francisco on June 11, fifty delegates from all parts of America being present. Fifty new members were elected. The present membership is 629.

The secretary's report announced that the debt of the association had been paid in full during the year. In making this announcement he took occasion to give a historical résumé of the causes that led to the incurring of this debt and of the policy followed by the association since, and offered the following resolution, reaffirming that policy:

"Whereas, The Train Dispatchers' Association of America is organized for the purpose of promoting harmony and fraternal feeling among its members, and has for its supreme aim the increase of efficiency as train dispatchers of its individual members; and

"Whereas, The experience of the past has taught that its success in carrying out these objects depends upon a rigid exclusion from its discussions at annual conventions or elsewhere of questions of hours worked, wages received by or conditions of service required of its members or train dispatchers in general on the various lines of railway by which they are employed; now, therefore

Be it Resolved, That the Train Dispatchers' Association of America, in convention assembled at San Francisco in this year of 1901, reaffirms its steadfast purpose to adhere to the policy of the past seven years, under which it has attained its present measure of success, and directs that all members hereafter accepted be required to conform thereto as a necessary condition of membership, and the Executive Committee is hereby instructed to prepare and submit to the next convention a constitutional amendment embodying and reaffirming this principle of action as a fundamental law of this association."

John P. Mann, of the Houston and Texas Central Railway, Ennis, Tex., was elected president; Fred. S. James, of the Illinois Central Railway, Cherokee, Iowa, vice-president; John F. Mackie, of Chicago, secretary-treasurer-editor.

The next annual meeting will be held at Pittsburg, Pa., on the third Tuesday in June, 1902.

Edison Storage Battery Now at the Pan-American.—The new Edison storage battery arrived at the Pan-American Saturday, July 20. The exhibit consists of a single cell, and also sample plates and oxide cases, which fit into the plates. The cell weighs 5¾ pounds, and is rated to give 100 watt-hours. It is contained in a metallic case, and has eight plates. The cell occupies a place in the Edison Manufacturing Company's exhibit, and attracts much attention from electrical men.

The testimony of progressive operators is that Telegraph Age is so thoroughly comprehensive in character as to make it indispensable to those who would keep informed. Its technical articles are of high practical value. Write for a free sample copy.

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Why a Telegraph Operator Declined.

John B. Van Every, vice-president and auditor of the Western Union Telegraph Company, has a favorite story of the early history of the company. A Rochester clothing manufacturer received a contract for making the uniforms for the telegraph operators along the line of the New York Central Railroad. In order to measure the operators for the uniforms he sent telegrams along the line asking them to meet him on the station platforms. He sent this telegram to the operator at Clyde, N. Y.:

"Meet me on arrival of the 2.15 P. M. train; wear nothing but shirt and trousers."

At the appointed time he reached the Clyde station and inquired for the operator. He saw a young lady looking wistfully about her. She said in answer to his inquiry:

"I am the telegraph operator, and am here in response to your summons; but I decline to comply with your instructions as to apparel."

The Morse Club.

Mr. Gardner Irving, manager of the Commercial News Department, 195 Broadway, New York, and president of the Morse Club, has issued a circular to the members in which he urges them to "think of the importance Professor Morse's invention has been to the world; of the employment it gives to you, to me, and to thousands of others; and of the event we aim to commemorate—The First Message—and then say if these things are not worthy of our gathering once a year, May 24, in a grand telegraphic social event."

The officers of this club are as follows: Gardner Irving, president; M. F. O'Brien, vice-president; M. F. Gaffney, treasurer; M. H. Kerner, secretary; W. A. Van Orden, historian. Governing Committee—F. W. Jones, W. C. Burton.

The initiation fee is 50 cents, the annual dues are the same amount, and lady telegraphers are eligible to membership.

From the telegraph ranks have been supplied a majority of the railroad officials. It is also a notable fact that the same ranks are being constantly drawn upon to fill positions on newspapers in all sections of the country. It will be interesting to note also that one of America's brightest telegraphers, who was at one time agent for this paper in Chicago, is now managing editor of a leading London, England, daily newspaper.

The P. B. Delany system of automatic telegraphy is now being tested on the Pennsylvania Railroad telegraph line under the direction of Charles M. Sheaffer, the new superintendent of telegraph of that road.

An Old Telegraph Line.

On July 26 the annual meeting of the Boston and Vermont Telegraph Company was held at Boston, Mass. The original line of this company running through Vermont is still in place. It was erected in 1848 and it has, therefore, done telegraph service for fifty-three years. The wire is of English manufacture, and it did not show any deterioration for the first forty years. It has, however, during the past thirteen years become impaired to a considerable extent, caused by the substituting in that time of coal instead of wood as fuel on the locomotives. It is a notable fact that the vice-president of this company, Mr. Charles A. Tinker, now general superintendent of the Western Union Telegraph Company, New York, learned to telegraph on this line in the early fifties. This old line is likely to do telegraph service for many more years to come.

CHINESE TELEGRAPHS.—General Chang Sun, at Kirin, has requested the Chinese plenipotentiaries to ask the Russian Minister to permit the telegraph in Manchuria to be transferred to the Chinese. The German military telegraph line from Pekin to Paoting-fu has been purchased by the Chinese, but there are not enough native operators, and telegrams are still sent in German.

The Colorado Fuel and Iron Company, with headquarters at Denver, Col., is constructing an independent telegraph line, said to be over a thousand miles long, for the purpose of connecting all branches of the company's service.

On railroads that are becoming congested with trains the telegraph is declared to be too slow a medium to handle the same, and that the telephone will take its place for this purpose in the near future.

Business Notice.

With a view of further introducing their machine in the business colleges and commercial schools of the country, the Smith Premier Typewriter Company, of Syracuse, N. Y., have issued a special catalogue showing a number of cuts suggestively illustrative of their machine, which cuts the company offers free of charge for purposes of use in the school catalogues.

Operators interested in the method of treatment of writers' cramp will find very complete information in the little booklet entitled "The Cure of Telegraphers' Paralysis," published by TELEGRAPH AGE, New York. Price 50 cents.

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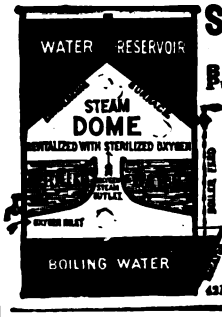
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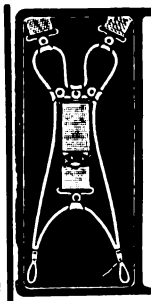
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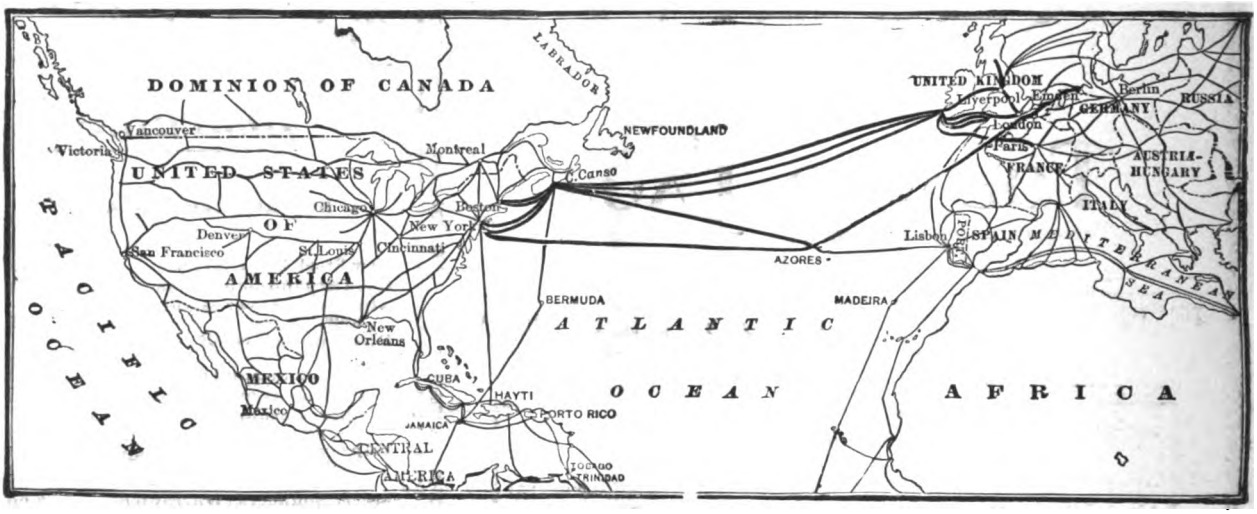
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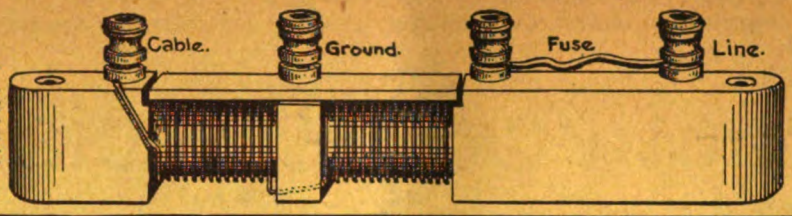
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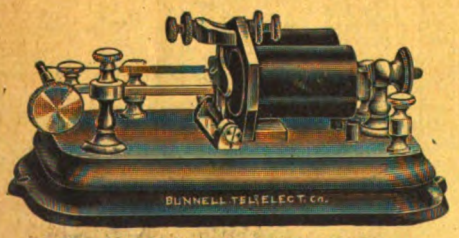
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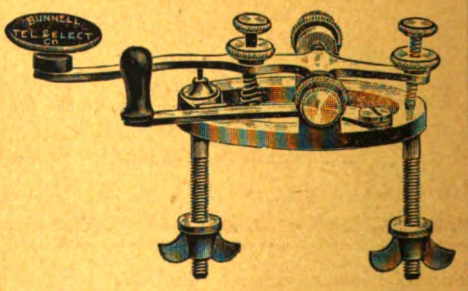


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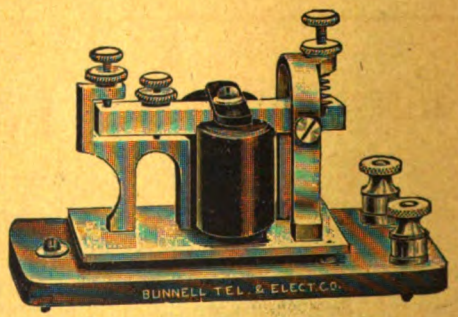


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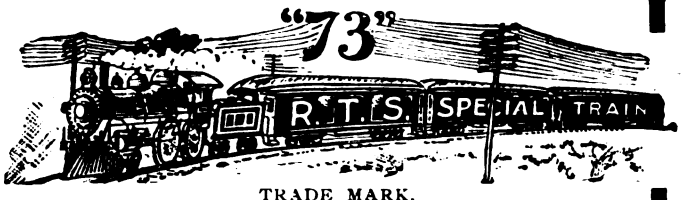
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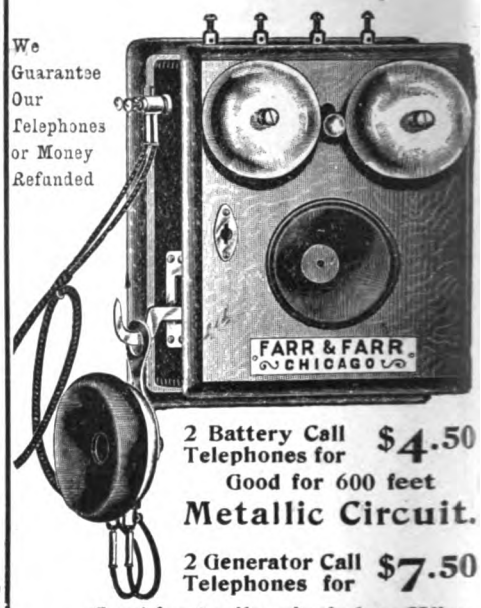
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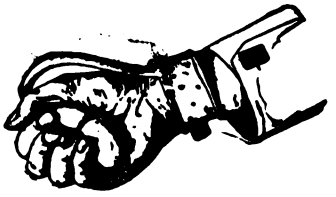
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THE TELEGRAPH AGE.

No. 16. NEW YORK, AUGUST 16, 1901. Vol. XXIV.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

[In the next issue of this journal Mr. Willis H. Jones will begin a series of articles showing the complete details of equipping a modern telegraph office. Beginning with the proper selection of the dynamos, he will carry the reader step by step from the cellar to the operating department; thence through the labyrinth of house wires underneath the floor to the various apparatus; state the size of wires to be used for the main and sub-leads, and last but not least, give a full and accurate reason for each move.

The series will be a complete handbook for any one contemplating the instalment of a new office or making alterations in an old one. The value of these important articles will be such as to interest a wide circle of readers, and those who desire to follow them in their consecutive order should send in their subscriptions at once.]

Since the announcement was made in this journal that the Western Union Telegraph Company had bought the Roberson quadruplex from the inventor and would soon install that system at various points, numerous requests have been received for a description of the manner in which it is balanced.

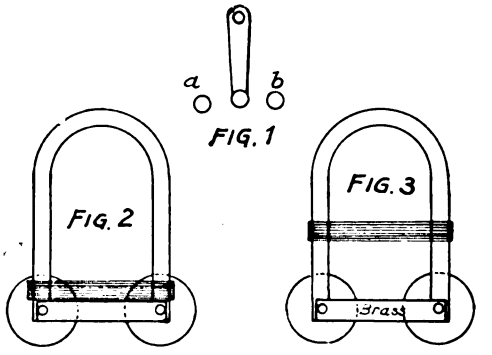
It is hardly necessary to remind the reader that in order to get the greatest efficiency out of any device one must first understand the same thoroughly, hence those who are entirely deficient in this knowledge should secure the March 16 and April 1 copies of this journal, which describe the Roberson system thoroughly, as companions for the following description as to handling it.

In the first place the reader should understand that although the system employs an alternating current for its operation, it has been found that a much more satisfactory line balance may be obtained by substituting a direct current for that purpose. The reason for doing this is that the "static," due to the rapid alterations, magnetize the main line coils of the relays by its separate influence, and which, if equated for by the adjustment of the rheostat alone, would give a false line balance.

In practice a three-point switch is employed, as shown in Fig. 1, to the disks *A* and *B*, of which the alternating and the direct currents are respectively connected.

HOW TO BALANCE.

1 —Open the keys on both sides of the quadruplex at both the home and the distant station, leaving



lever *L* on its normal disk *A*. This "grounds" the circuit at each end of the wire.

2—Now, consider the transmitter and the relay on the *A* side, an ordinary Stearns duplex, and proceed in the identical manner followed when balancing that device, viz., turn down the retractile spring of the relay until the latter "buzzes" from the feeble influence of line induction.

3—Turn lever *L* to disk *B*, thus throwing a direct current to the line, but do not close your keys yet.

4—Adjust the rheostat in the usual way until the relay stands "open" and free of magnetism. This completes the line balance.

5—Now turn on the alternating current by moving lever *L* back to *A*, and close one key.

It will usually follow that the relay will then "close," owing to the magnetism developed by the unequated "static" discharge of the line. This is eliminated entirely by the adjustment of the condensers and retardation coils, but seems to be the most perplexing part of the performance, as a slight change in the position of the plug in the retardation coil frequently affects the relay almost as much as

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an alteration in the capacity of the condenser itself. Nevertheless it is not a difficult task, and with a little practice one soon learns to distinguish between the two effects, and can effect a true balance as quickly and with as little trouble as is experienced with the old standard apparatus.

The relay on the *B* side, after having once been properly adjusted, seldom requires readjustment when new balances are taken, unless the change is quite marked.

The relay on the *A* side is usually the most troublesome of the two, on account of it being necessarily thrown out of adjustment during each process of balancing. The readjustment of the retractile spring and magnet to the incoming signals obviously requires more or less experimenting before the proper tension is obtained.

A FEW HINTS.

The iron crossbar slide at the base of the steel horseshoe is for the purpose of regulating the strength of the permanent magnetism therein to suit the strength of the incoming current. In dry weather the normal position of the slide is usually close against the brass crossbar, which holds the relay cores rigidly together as a helix, as shown in Fig. 2.

In very wet or foggy weather, however, it has been found best to raise the slide somewhat towards the arch, as seen in Fig. 3. The latter position alters the strength of the permanent magnetism at the poles and makes it more suitable to the incoming current. The proper position at such times can only be ascertained by actual trial. When the small magnets in the local circuits have been properly adjusted they seldom require further attention. When artificial resistance is required in any part of the circuit it should be non-inductive, as the presence of a coil of wire, where an alternating current is employed, greatly increases the impedance and lessens the volume of the current. This explains the presence of the various carbon resistance rods used in setting up the Roberson quadruplex apparatus.

The strength of the current can be measured with an ammeter in the usual way.

To measure the home current ask the distant office to open both keys. This grounds the circuit at that point. Then close one of the home keys and insert the meter in the wedge at the main line switchboard and note the deflection of the needle. For the opposite pole close the other key and open the first and proceed as before.

To measure the distant current the process is the same with the exception that the distant station must close first one and then the other key, as requested, while both home keys remain open while measuring. The proper strength of such currents should be about 25 or 30 milliamperes, the same as used for polar duplexes.

The contact points of the polechangers, or transmitters, as they are really called, need not be adjusted so close together as is required in the standard quadruplex apparatus; in fact, better results are obtained when they are given a reasonable amount of play.

For repeating sounders, what might be called "cushion" sounders should invariably be used, as they seem to take up the vibrations due to an alternating current and render the signals perfectly clear and distinct. The "cushion" apparatus mentioned is merely a repeating sounder, the bar lever of which engages two small levers adjusted by retractile springs, which prevent the usual jar or rebound which occurs when a solid bar strikes a contact point.

The idea, or rather the application of the idea to the Roberson quadruplex was suggested by Mr. W. E. Athearn, of 195 Broadway, New York.

Personal Mention.

Captain Willard L. Candee, general manager of the Okonite Wire and Cable Co., New York, has returned from Europe.

Mr. A. R. Brewer, secretary of the Western Union Telegraph Co., New York, is absent from his office on a well-earned vacation.

Gen. Thomas T. Eckert, president of the Western Union Telegraph Company, has been elected a director of the Union Pacific road.

Mr. Francis W. Jones, electrical engineer of the Postal Telegraph-Cable Co., New York, has gone to San Francisco on business connected with his department.

Mr. Nikola Tesla, the noted inventor, has recently purchased a large tract of land on Long Island on the Sound shore, near Port Jefferson, where he proposes to erect extensive electrical laboratories and experimental shops.

Resignations and Appointments.

Mr. A. B. Forres, chief operator of the Western Union Telegraph Company, at Beaumont, Tex., has resigned to enter other business.

Mr. H. H. Griffin, of Pittsburg, has been appointed manager of the Western Union office at Parkersburg, W. Va., vice D. R. Cook, resigned, to go to Chicago.

Mr. A. M. Causey has been appointed manager of the Western Union Telegraph Company, at Bowling Green, Ky., vice J. K. Woodruff, resigned, to go with the telephone company, at Nashville, Tenn. Mr. Causey was manager of the Postal interests at the same point.

Obituary.

Edgar Snyder, an old-time telegrapher, died July 31 at Woodstock, N. Y., aged 64 years.

Clarence A. Cary, an operator and train dispatcher at Jackson, Mich., in the seventies, died on August 2 at Norwich, N. Y., where he had been engaged in outside business for some years past.

W. H. Johnson, an old-time telegrapher and a charter member of the Old Time Telegraphers' Association at Louisville, Ky., died on July 28. Mr. Johnson claimed to be the inventor of the switchboard as now used in all telegraph offices. He was born in 1834 at Williamstown, Mass.

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Miscellaneous Items.

The Postal-Telegraph Company, of Texas, has opened an office at Brenham, Tex., with Mrs. L. M. Miles as manager.

Mr. W. H. Reese, manager of the Postal Telegraph-Cable Company, at Jennings, La., has been transferred in the same capacity to Crowley, La.

Mr. George F. Fagan, of the general manager's office of the Postal Telegraph-Cable Company, New York, is in Michigan, enjoying his vacation.

Mr. W. Branch Wainwright, manager at Seaford, Del., writes: "Inclosed find $1.50 for TELEGRAPH AGE for another year. I need the paper in my business and find it very useful to me."

Mr. Michael J. Kenna, of the race bureau of the Western Union Telegraph Company, together with his brother, Mr. J. A. Kenna, is spending a brief vacation at his old home in Concord, N. H.

Mr. Kirby L. Smith, manager, Salisbury, Md., in remitting to cover his yearly subscription, states that he is glad to be enrolled among the subscribers to TELEGRAPH AGE, and that he finds the paper of great benefit to him.

Mr. Frank N. Dowler, at one time prominent in telegraph circles, being manager of the American Union Company, at Toledo, O., is now connected with the freight department of the Delaware and Lackawanna Railroad in New York city.

Mr. Thomas F. Carroll, a well-known New York telegraph operator, on August 9, saved two companions from drowning near Atlantic City, N. J. The boat in which the three men were sailing, capsized, and Mr. Carroll, being an expert swimmer, held the heads of his companions above water until assistance reached them.

Mr. W. I. Capen, general superintendent of construction, Postal Telegraph-Cable Company, Chicago, Ill., in renewing his subscription for another year writes: "It is with pleasure that I inclose my check for another year's subscription to the AGE. If the price were set by the value of the paper I should still be greatly in your debt."

W. L. Mercereau, superintendent of the Pere Marquette Railroad Company, announces that his company will in the near future install wireless telegraphy between Manitowoc, Wis., and Ludington, Mich., over fifty-six miles of open water, across Lake Michigan. Later the Pere Marquette company expects to equip all its lake steamers with the system.

New York Visitors.

Mr. Morris W. Mead, superintendent of the Bureau of Electricity, Pittsburg, Pa.

Mr. E. J. Nally, general superintendent, Postal Telegraph-Cable Company, Chicago, Ill.

Mr. W. F. Williams, superintendent of telegraph of the Seaboard Air Line, Portsmouth, Va.

Mr. J. W. Kates, general superintendent of the Postal Telegraph-Cable Co., Richmond, Va.

Mr. C. C. Adams, superintendent of the Postal Telegraph-Cable Company, Philadelphia, Pa.

Mr. W. J. Camp, superintendent of the Canadian Pacific Telegraph Company, Montreal, Quebec.

Col. J. R. McIntosh, general counsellor of the Postal Telegraph-Cable Company, Richmond, Va.

Mr. H. A. Tuttle, general manager of the North American Telegraph Company, Minneapolis, Minn.

Mr. James Kent, general manager of the Canadian Pacific Telegraph Company, Montreal, Quebec.

Mr. E. Waldron, night chief operator of the Western Union Telegraph Company, Atlanta, Ga. Mr. Waldron is a telegraph engineer of exceptional abiiity, and he improved the opportunities extended to him while in New York, to familiarize himself with every improvement in telegraphy that he had not previously heard of. Mr. Waldron made many friends while in the city, who regard the Atlanta management as being fortunate in having a man of Mr. Waldron's ability on its force.

Meeting of the Old Time Telegraphers' and The United States Military Telegraph Corps.

The twenty-first annual meeting of the Old Time Telegraphers' Association and the United States Military Telegraph Corps will take place at Montreal, Que., on September 11, 12, 13 next. The programme of proceedings, so far arranged, is as follows: On Wednesday, September 11, at 10.00 A. M., the informal meeting will occur in the ladies' parlors at the Windsor Hotel, Montreal. An address of welcome will be made by Mayor Prefontaine, M. P. At 10.30 there will be a business meeting of the Old Time Telegraphers' Association. The "Telegraphers' Home" project will be brought for discussion, and a proposition to merge the "Telegraphers' Historical Society of North America" will be considered. At 11.30 a business meeting of the United States Military Telegraph Corps will be held in the same place. At 2.00 P. M. a drive through the city and up to the summit of Mount Royal has been arranged.

On Thursday, September 12, a visit will be made to the Electrical Buildings of Montreal at 10.30 A. M. At 2.00 o'clock a trip will be made on the steamer "Duchess of York" via the Lachine Canal, a feature of which will be shooting the rapids and inspection of the harbor of the City of Montreal. At 8.00 P. M. a theater party will fill in the evening.

On Friday, September 13, a trip by trolley cars will be made at 2.00 o'clock, carrying the visitors to the power plant of the Lachine Rapids Hydraulic and Land Company. At 8.30 P. M. a subscription banquet will be held at the Windsor Hotel.

Members who propose attending this meeting are requested to communicate this fact early to Mr. Fred. H. Waycott, manager, Anglo-American Telegraph Company, Montreal Chairman of the

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Hotel Committee, who, upon request, will endeavor to secure the necessary room accommodations in advance. Tickets for the banquet, price $3.00 each, can also be had from Mr. Waycott.

Arrangements have been made with the Richelieu and Ontario Navigation Company for the issue of excursion tickets at single fare to such members as desire to visit the City of Quebec.

The officers of the Old Time Telegraphers' Association are L. B. McFarlane, President, Montreal; J. E. Hutcheson, Vice-President, Ottawa; John Brant, Secretary-Treasurer, New York. Executive Committee: H. C. Hope, St. Paul, Minn.; H. J. Pettengill, Boston, Mass.; J. J. Dickey, Omaha, Neb.; J. Compton, Nashville, Tenn.; Thos. Ahearn, Ottawa, Can.; James Kent, W. J. Camp, Wm. B. Powell, Fred'k H. Waycott, Montreal, Can.

The officers of The United States Military Telegraph Corps are: Col. Wm. B. Wilson, President, Holmesburg, Philadelphia, Pa.; Wm. L. Ives, Vice-President, New York; J. E. Pettit, Secretary and Treasurer, Chicago, Ill. Executive Committee: E. Rosewater, Chairman, Omaha, Neb.; A. H. Bliss, Chicago, Ill.; Col. A. B. Chandler, New York; W. R. Plum, Chicago, Ill.; George C. Maynard, Washington, D. C.; D. Wilmot Smith, Breckenridge, Minn.; R. B. Hoover, Springfield, Ohio; L. A. Somers, Cleveland, Ohio; J. D. Cruise, Kansas City, Mo.

The Average Slip.

Editor TELEGRAPH AGE:

The question of the average number of messages handled by operators each day and the gaging of expertness according to the number disposed of, is the most erroneous system and one qualified to work a great injustice. In illustration, place an operator of very inferior attainments, a plug, in fact, upon a quad, and he will average two or three times the number of messages that a first-class man can possibly handle on way wires. The quad man has no calling to do, and merely sits all day at his desk receiving or sending. The way wire man will perhaps call from ten to one hundred times before raising an office and has to spend a quarter of his time marking down his calls. In fact, the way man does twice the hard work, sending fifty messages, as will the quad man, handling one hundred and fifty. A little thinking on the part of managers and chief operators on this subject will elucidate the matter, for it is not an intricate problem at all. To a man of the least comprehension it is as plain as the nose on his face. In order to arrive at a just estimate of the capacity of an office why not make a total of messages sent by the force each day and divide the total by the number of operators on duty. Then the company will understand that the force in general is doing its duty. It is evident that men who work hard all day on way wires receive no credit for their earnest endeavors, while many very inferior quad men are credited far above their desers.

PHILIP H. FALL.

Houston, Tex., August 6.

Western Union History.

Mr. A. R. Brewer, Secretary of the Western Union Telegraph Company, New York, is the author of a very beautiful and artistic booklet entitled, "A Retrospect," it being a history of the Western Union Telegraph Company, covering the fifty years of its existence, from 1851 to 1901. In lieu of a preface, the following letter from Gen. Thomas T. Eckert, the president of the Western Union Telegraph Company, addressed to the stockholders, appears: "The semi-centennial of the organization of the Western Union Telegraph Company occurred on April 8, 1901, the articles of association of the New York and Mississippi Valley Printing Telegraph Company, the original name of the company, having been filed at Albany, N. Y., in April, 1851. It has been suggested that a brief unofficial sketch of the growth of the company during the fifty years would be of interest to the stockholders. Such a sketch has been prepared by the secretary, and I take pleasure in sending a copy of it to you."

Mr. Brewer is one of the best posted telegraph historians in the world, having made telegraph property and organization a study for upward of thirty years. It is, therefore, natural that his pen should produce an accurate and well written history of the great telegraph corporation with which he has been prominently identified for so many years. The work is profusely illustrated. Views of the New York and Chicago Western Union Buildings are shown together with reproductions of two of the pages of the tariff book of the House Printing Telegraph, published in 1851, one showing the old office at 21 Wall street, New York, the other a picture of House's Telegraph. There are shown also photographic reproductions of some old envelopes of sundry contemporaneous telegraph companies and their message blanks. The brochure is also embellished with a number of other engravings, showing the automatic repeating tables in the Western Union office at Buffalo, N. Y.; the operating room of the office at Denver, Col.; the dynamo room of the office at Pittsburg, Pa.; the pneumatic tubes centering in the main office at New York and which extend to the Stock and Produce exchanges and to branch offices about three miles distant; the figure of a modern Morse operator reading by sound of the instrument and writing message simultaneously on typewriter, and a facsimile specimen of printing by Buckingham's new machine telegraph.

Altogether the handsome volume is a highly creditable production from every point of view and will prove of interest to a wide circle of readers.

CHEAP CABLE MESSAGES.—A cable dispatch from London, England, says: At a recent meeting of the Eastern Telegraph Company the chairman, Sir John W. Barry, announced that in conjunction with the post office authorities, the directors of the company were formulating a scheme to enable the public, by means of a code, to cable to the Far East for about 2 cents a word.

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The Voltaplex.*

Inventions having for their object the cheapening of telegraphic communication by increasing the carrying capacity of the wires, have multiplied somewhat rapidly of late, but these innovations have, for the most part, been confined to so-called automatic systems, whose inventors have sought to attain the desired end by the increased speed at which the signals are transmitted over the wire. These schemes are generally of so complex a nature, and so much preparatory work must be performed previous to its transmission over the wire and subsequent translation at the receiving end that, as a rule, these systems can be utilized to advantage only at points between which a large volume of business is handled.

I wish to call your attention to-day to an adjunct to the telegraphic service which has recently been brought out by Mr. H. D. Bartholomew, of Newark, O., chief operator of the Baltimore and Ohio Railroad, and Western Union Telegraph Company at that point.

Mr. Bartholomew calls his invention "The Voltaplex." This is a system adapted to ordinary, everyday requirements of the service which may be placed in the hands of unskilled operators with good results.

The Morse system, then, constitutes one side and the Voltaplex the other, making practically two separate and distinct circuits. Referring to the diagram, Fig. 1, it will be seen the Morse instruments are placed in the line next to the main battery; the Voltaplex instruments are connected next to the Morse relay in the line. In practice the Voltaplex is connected to the switchboard as a separate instrument which may be cut in on any Morse circuit at will. The graduating coil *G* and ground condenser *C*, placed next to the Morse relay, as shown, constitute the graduating device.

The effect they produce on the line, as is well understood, is to slightly prolong the Morse signals and to absorb the extra current at the moment of make and break of the Morse circuit. The condenser also performs a second office, namely, that of forming a path to ground for the Voltaplex currents. Next to condenser *C* is placed transmitting coil *T*, the operation of which will be explained further along. Next to the line is placed the polarized relay, which you will note is not directly in the line, but in series with condenser C^2; in shunt around diverting coil *D*. The latter, while presenting very little resistance to the Morse current, has a high inductive

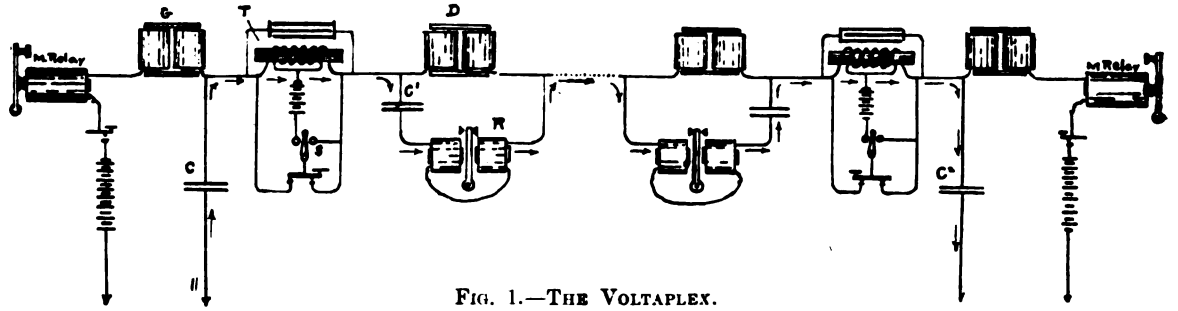


FIG. 1.—THE VOLTAPLEX.

The principle involved in its operation is, to some extent, analogous to that of simultaneous telegraphy and telephony, and the phonoplex system of telegraphy, in that graduating apparatus is employed to avoid interference between the two sides instead of the usual artificial line of the duplex system. It will help to a clear conception of the system if we bear in mind, in the start, that the line is equipped at each end with the ordinary Morse instruments which are operated in the usual manner just as any other Morse single line. The Voltaplex instruments are then connected in the line as an auxiliary to be operated entirely independent of the Morse, neither system interfering with the other in any particular.

resistance. It will be assumed, of course, that each end of the line is similarly equipped. I will now call your attention to the construction of the transmitting coil, which presents some novel features, and is an exceedingly simple and effective device for sending alternating impulses of uniform strength over the wire. The coil itself has the appearance of an ordinary induction coil, but an examination of its construction and the manner of connecting it in the line will show a wide difference. For instance there is no primary and secondary in the usual sense; in theory, there is but one winding, which is tapped in the middle; in practice, it is double wound and connected, as shown. In one position of the double-contact key one-half of the coil acts as the primary and in the other position the other half acts as primary, while at the moment of discharge, that is, the moment between the make and break of the key contacts, the entire winding is in series, and acts as the secondary. The manner of winding and connecting up the coil and its operation will readily be understood by reference to the diagram, Fig. 2. The advantage of this ingenious arrangement is that the impulses from the coil, both on opening and closing the key, are due to the break of contact, and consequently the maximum strength is obtained at each

*Read by Charles Selden, of Baltimore, Md., before the Convention of the Association of Railroad Telegraph Superintendents, at Buffalo, N. Y., June 19, 20, 21.

Mr. Selden, before reading, said: "At the request of the inventor, I present to you what he has to say upon the subject of a recent invention, which he terms the "Voltaplex." I wish to preface the paper by stating that I have not personally seen the device in operation, but my information is to the effect that it works satisfactorily, and that information comes from entirely trustworthy sources. The receiving instruments consist of a polarized relay, with which is connected the ordinary telegraph sounder. The amount of battery employed is the same as that used upon similar systems. It is the belief of the inventor, Mr. H. D. Bartholomew, Chief Operator of the Western Union and the Baltimore and Ohio Telegraph Office at Newark, Ohio, that its efficiency and carrying distance may be further increased when a larger practical experience has been had with the device."

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discharge. It will be noted there is no transmitter in the arrangement, the key, relay and sounder comprise the only instruments with which the operator has to do. Occasional slight adjustment of the relay and keeping the key contacts clean are all that is required of the operator in the way of taking care of it.

The coils referred to are placed in a closed box and may be placed in any position, as they require no manipulation. I will now describe the operation of the Voltaplex in detail, keeping in mind that the wire is already in use as a Morse circuit. It will be understood that the Voltaplex relay is not affected by the Morse currents, because it is not placed directly in the line and the Morse current has not sufficient pressure to overcome the resistance presented by the condenser in series with the relay, and so keeps to the main line, passing through the diverting coil, which presents very small resistance to the Morse current.

Referring to Fig. 1, assuming that key switch *S* is thrown to the left, or "open," it will be seen that one-half the coil is short-circuited in series with the coil battery; should now the key be depressed and the rear contact thereby broken and before the front contact is made a current of definite polarity will be generated in the coil and pass out over the line; this

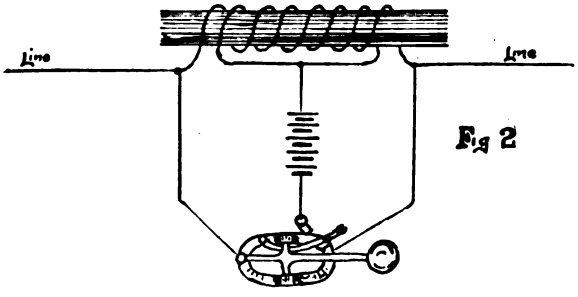


Fig 2

current, being of comparatively high voltage, is diverted from the main line by choke coil *D* and passes through relay *R*, whose armature is thereby attracted from its back to the front stop and similarly operating the relay at the distant end, passes thence to earth via condenser C^2. The front key contacts now being closed the coil is again magnetized, but in the opposite direction from before and upon the key being opened the coil is again discharged, but the impulse is now of opposite polarity and the relay armatures are attracted to the back stop. The relays thus respond to the downward and upward movement of the key just as if by a continuous Morse current. The armatures, of course, remain on either front or back contact, as determined by the last impulse. A permanent pull may be obtained by making the cores of steel or hardened iron. The path taken by the Voltaplex current is shown in the diagram by the arrows. It will be seen that it has a complete circuit without passing through the Morse instruments, which are therefore unaffected thereby. The Morse current similarly does not operate the Voltaplex relays, because it does not pass through them. This system may be operated over any existing Morse circuit, whether local or way offices are cut in on the wire or not. It may be put in use over any part of a Morse circuit; that is, the Voltaplex terminals need not be at the same points with the Morse terminals. It can be connected to a Morse line at either terminal by a suitable automatic repeater. It can be operated over two or more Morse wires, each forming part of the Voltaplex circuit. Many other situations to which it is especially adapted might be mentioned.

As an open circuit system for equipping lines independent of the Morse it should find a large field. In this arrangement the relays are connected directly in the line and the wire simply grounded at each terminal. The apparatus is exceedingly simple. The entire equipment, including batteries for one end of the line, may consist of two pieces, the total weight of which is about 25 pounds. Perfect results have been obtained with the Voltaplex in various tests made over wires of different lengths and capacities. A recent test between Newark, O., and Pittsburg, Pa., a distance of 180 miles, over a 10 gage copper wire, gave exceptionally good results.

International Association of Municipal Electricians.

At the annual convention of the International Association of Municipal Electricians, which will be held at Niagara Falls, N. Y., on September 2, 3, 4, in addition to the paper to be read, as previously announced, by an eminent electrical engineer, on the advisability of placing high and low potential wires or cables in the same series of conduits or through the same manholes, the following topics will be discussed: "The Need and Value of a Set of Rules for Outside Construction," by P. H. Trout, Jr., Lynchburg, Va.; "Underground Electrical Construction from a Municipal Standpoint," by Edward F. Schurig, Omaha, Neb.; "The Protection of Fire and Police Telegraph Wires from High Tension Currents and Lightning," by W. M. Petty, Rutherford, N. J.; "Improved Storage Battery for Municipal Purposes," by J. W. Aydon, Wilmington, Del.

Municipal electricians and superintendents of fire and police telegraph systems in western and southern cities are particularly requested and invited to be present at the convention.

Intending visitors can secure accommodations by addressing either M. T. Donohue, superintendent of fire telegraph, or W. G. Green, 473 Second street, Niagara Falls.

A Farewell Dinner.—A farewell dinner was, on July 23, given to the members of the Board of Management of the Electric Building Loan and Savings Association at the Marine and Field Club, Bath Beach, L. I., N. Y. Mr. Theodore L. Cuyler, Jr., treasurer of the association, and president of the Marine and Field Club, tendered the use of the club-rooms for the occasion. Mr. F. W. Jones, vice-president of the association, presided at the dinner and in appropriate remarks dwelt at some length on the good accomplished by the association in its ten years' existence, in enabling many of its members to secure homes of their own.

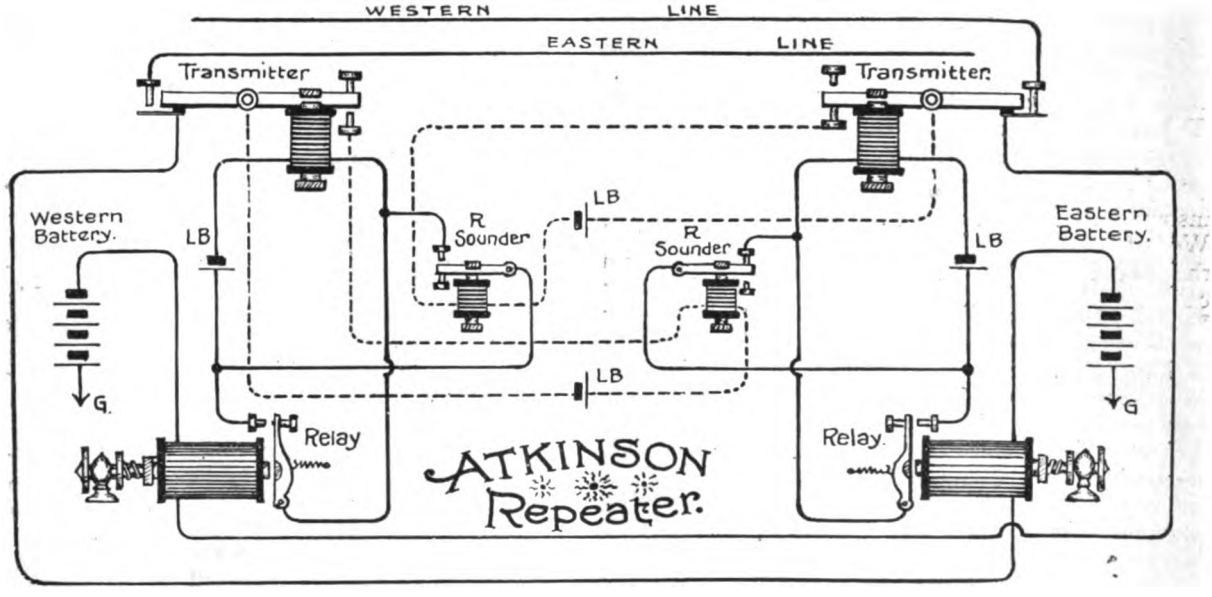
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The Atkinson Repeater.

BY W. E. ATHEARN.

The Atkinson repeater, recently adopted as a standard by the Western Union Telegraph Company, belongs to that class of single line repeaters using plain ordinary relays, both of which respond to the signals made on either of the wires connected by the repeaters. The necessary "holding closed" of one transmitter is accomplished by a repeating sounder in a local circuit of the other transmitter.

The fact that the holding devices are purely local makes this one of the simplest and easiest repeaters to keep in adjustment. No more skill is required than to adjust an ordinary relay. The universal rule that applies to the adjustment of all repeaters, however, should not be overlooked. Adjust your relay till the signals are perfect, then turn down a trifle on the relay spring. This compensates for the time lost and the shortening of the signals in passing through a repeater.



The diagram shows the western line sending. The opening of the western relay opens the local circuit of its transmitter. This transmitter is similar to that used in the Milliken-Hicks repeater, and its front contact points control a repeating sounder in a separate local battery circuit. When this repeating sounder opens, its contact points on the up-stroke bridge the local points of the eastern relay, thus holding closed the eastern transmitter.

When the operator on the western line closes his key, the operations of the repeater are as follows: The western repeater relay closes, thus closing its transmitter. As this transmitter closes, it first closes the spring repeating points at its back end, which close the eastern main line circuit; next its front contact points close the repeating sounder, thus breaking the bridge around the local points of the eastern relay. This slight delay in removing the bridge, made by the repeating sounder, gives time for the eastern relay armature to have closed its points before the bridge is broken.

Reversing the operation, the repeater action is as follows: The western relay opens, opening its transmitter. This first opens its repeating sounder and then the eastern main line, thus giving time for the bridge to be closed around the local points of the eastern relay before its armature moves backward. The repeating sounder should have quite a stiff spring, so that it will be comparatively quick to open and slow to close.

Three gravity cells for each transmitter and two for each repeating sounder are sufficient, unless the leads to the local battery are long, in which case it may be well to use four cells on the transmitter.

In the House of Commons, London, England, on July 30, by a vote of 150 to 44, a resolution was adopted authorizing the expenditure of £2,000,000 ($10,000,000) on the Pacific cable, as per agreement with the colonies.

Mundy-Gray Submarine Signal System to Be Tested.

The United States Government has granted the Submarine Signal Company of Boston permission to erect a cable house on Egg Rock. The company will establish a system of submarine signaling, by which vessels coming into Boston harbor may determine their position when within 10 or 12 miles from shore, and thus escape the danger of too nearly approaching the shoals and ledges at the entrance to the harbor. The company has also received permission to erect a cable house on Minot's Ledge. If the system proves successful, a series of stations will be erected at distances of 10 miles or thereabouts, along the entire Atlantic coast of the United States.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.

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BUSINESS NOTICES.

A Great Telegraphic Code.

The Western Union Telegraphic Code and International Cable Directory made its appearance in 1898, and has since been thoroughly revised in order to bring it right up to date. In this revision the International Cable Directory Company, of 30 Broad street, New York city, publishers, spared neither labor nor expense, no less than $50,000 having been paid out on the work.

To establish a "Universal Code System" was a bold undertaking, and many persons familiar with codes and the telegraph business generally expressed grave doubts as to whether success would crown the efforts of the publishers.

There are in existence to-day innumerable codes, but they can be used only by such persons as have the particular code used. The Western Union Telegraphic Code, Universal Edition, is built on an entirely different plan. In other words, as its name implies, it is intended to enable holders of the code to communicate with a correspondent in any part of the world, whether the latter happens to have the Western Union code or not. In furtherance of this object the code has been placed in the principal offices of the Western Union and Great Northwestern Telegraph companies in all cities and towns of 2,000 population and upward in the United States and Canada, for the free use of the public. If, for instance, a firm in London sends a message by the Western Union code to New York or Boston, and the message is received by a firm not possessing a copy of the code, the latter can go to the Western Union Telegraph office and decipher the cablegram without the cost of a penny.

This is a startling innovation and the publishers deserve the thanks of the public for granting it such extraordinary facilities.

The establishment of a comprehensive code readily accessible to the business man is a matter of enormous public utility and means an entirely new development in telegraphy.

The code is on file in the offices of the Western Union, Anglo-American and Direct United States Cable companies in Great Britain, and on the Continent of Europe, as well as in the principal offices of the French Cable, Central & South American, Cuba Submarine, West India & Panama, Compania-Telegrafos Federales, Eastern, East African and Eastern Extension Telegraph & Cable companies. Furthermore, the public has free access to the code in the government telegraph offices of the principal cities in Japan, India, Netherlands, Indies, Australia and New Zealand, and the International Cable Directory Company is placing the books in telegraph offices of other countries as rapidly as they can obtain consent from the respective governments.

While all this is a very costly operation it has brought the Western Union code into such general use that it is rapidly supplanting all other codes.

It is obvious that by having one code in general use a great saving of time can be effected by the business man. When a message is received, instead of having to haul down a dozen or twenty different codes all that is necessary now is to inform the correspondent that the Western Union code is used, and the correspondent can go to a telegraph or cable office and decipher the telegram.

The Western Union code is the largest ever issued in this or any other country, comprising as it does nearly 175,000 code words and phrases. It treats fully upon almost every conceivable subject—from bicycles to liquid air—including social phrases. By its use an enormous saving can be effected in telegraph and cable tolls.

The book was long ago adopted by the United States War Department, and the United States Commissioners at the Paris Exposition found it of immense advantage. It received the highest award in Paris, and has been adopted by the Pan-American Exposition in Buffalo. In addition to the code the work also contains an International Cable Directory, the number of subscribers up to this time being about 20,000, including representative corporations, firms and individuals throughout the world.

The Industrial Department of the Lackawanna Railroad, in charge of William B. Hunter, and having its headquarters at 26 Exchange Place, New York city, has just issued a 500-page booklet under the caption—"Industrial Opportunities."

This work treats of every town on the line, showing its population, its distance from New York and from Buffalo, its railroad facilities, its leading industries, its leading shipments, its rate of taxation, cost of labor, rent of houses, how lighted, whether it has water works or not, its principal power, approximate cost of steam coal, approximate value of lands, and describing vacant lands or factories available for manufacturing purposes.

In the introduction the aim of the Lackawanna Railroad is set forth as follows—First: To give assistance to manufacturers in the selection of the most favorable site for their industrial enterprises. Second: To help cities, towns, and villages along the line to expand and broaden through the location of new industries.

The advantages of this line in the mining regions of New Jersey and Pennsylvania and the agricultural districts in the State of New York are fully set forth. Copies of the book will be forwarded on application to the Industrial Department.

At the annual meeting of the stockholders of the Standard Telephone and Electric Company, of Madison, Wis., lately held, the capital stock of the company was fixed at $300,000, and the following officers were elected: Thomas H. Gill, attorney for the Wisconsin Central Railway, Milwaukee, president; A. L. Hutchinson, of Weyauwega, Wis., president of the Independent Telephone Association of Wisconsin, vice-president and general manager, and E. W. Batchelder, of Madison, secretary and treasurer. These three officers constitute an executive board. The business of the company is in a prosperous condition, and the new officers will spare no pains nor labor to perfect the efficiencies of its output and to increase the same.

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NEW YORK, August 16, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

Mr. Clark Before the Industrial Committee.

The statement of Mr. Thos. F. Clark, vice-president of the Western Union Telegraph Co., New York, made before the United States Industrial Commission at Washington, D. C., March 14, 1901, on the subject of government ownership of telegraphs, has been printed in pamphlet form. The statement occupies thirty-five pages and is replete with extremely valuable information on this subject and is attracting the attention of the public.

The testimony of Mr. Clark covers the subject very thoroughly and includes a lengthy and interesting argument on postal telegraphs. A map showing the system of local telegraphic rates in the United States by a system of squares is incorporated in his argument, together with tabulated forms of foreign telegraph statistics, naming the respective countries, miles of line, miles of wire, number of offices, number of employees, number of messages handled, receipts, expenses, area in square miles covered, population per square mile, miles of wire to each square mile of territory, number of people to each mile of wire, miles of wire to each person.

The statistics are given to cover all the principal countries of the world and the comparison is made with similar statistics covering the United States.

A "Mental Anguish" Case.

Two years ago a citizen of Columbia, S. C., brought suit against a telegraph company and received a verdict of several thousand dollars damages for "mental anguish" resulting from the non-delivery of a telegram. The Supreme Court decided that a person could not recover damages for mental anguish disconnected with and in the absence of bodily injury.

The last South Carolina legislature passed an act making telegraph companies especially liable to damages for mental anguish caused by their negligence, even in the absence of bodily injury. The first case tried under this act has just been won by the plaintiff, who suffered because she supposed her husband was ill, when in fact he had telegraphed that he was all right.

The telegraph company has appealed, and is employing two of the strongest law firms in South Carolina to fight the case in the Supreme Court.

Greengoods Swindlers and the Telegraph.

Charles P. Adams, of Jersey City, superintendent of telegraph of the Central Railroad of New Jersey and of the Western Union Telegraph Company, covering that system, and Alfred Kaiser, manager of the Claremont, N. J., telegraph office, were arrested a few days since, charged with aiding and abetting greengoods swindlers. The complaint was made by Chief of Police Benjamin Murphy, of Jersey City. The greengoods swindlers were not caught, and Chief Murphy proposes to persecute these telegraph people as he persecuted for years the manager of the Western Union office at Jersey City for refusing to divulge the contents of telegrams.

The swindlers used largely the telegraph in their operations. The headquarters of the swindlers is in New York, but they have had their telegrams sent to Jersey City, and for several years Chief Murphy, of that city, has been trying to stop this practice.

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Rufus H. Minot, of Northfield, Mass., received a circular by mail which represented that the senders had obtained government plates, and could print United States Treasury notes so cheaply that they could afford to sell them at a large discount. The circular advised Minot, if he wanted to make a fortune easily and quickly, to telegraph "William N. Gray," at Claremont, N. J.

Chief Murphy wrote to Minot to send the dispatch to Claremont and notify him of further developments. They came in the shape of a price list and a good one-dollar bill as a sample. Minot also got a letter instructing him to go to the Astor House on reaching New York, register under his real name, giving Boston as his residence and stick close to his room until somebody came after him. He was to give this password, Kenman, to this somebody and accompany him to their New York headquarters, where wealth would be awaiting him.

On June 27 Chief Murphy wrote Minot to send this dispatch on July 15: "William A. Gray, 1924 Third avenue, New York city. Don't like this place. Will be in telegraph office, Claremont, at 4 o'clock on Wednesday, July 17. Will have your letter in my hand with 291 on envelope. R. H. M."

Two days later Minot notified the chief that the greengoods men didn't like the changed program and had informed him that they didn't do business at Claremont, but at their New York office. Minot later agreed to telegraph from Northfield that he would be at the Astor House, and Captain Titus, of New York, at the request of Chief Murphy, had a detective on hand to impersonate him, but the greengoods men did not show up.

Chief Murphy was anxious to ascertain if the New Jersey telegraph operators were in collusion with "William A. Gray" and his gang. Acting Inspector McKaig went to the telegraph manager at Claremont and told him he would be arrested if he didn't tell what became of Gray's telegrams. A similar visit was made to Supterintendent Adams, but all information was refused.

Chief Murphy was certainly delinquent in his duty, and to say the least he did not show the average wisdom of a police officer when he undertook to change the program of the swindlers. His anxiety to capture them on New Jersey soil will not relieve him of the suspicions that he, in dictating that one message changing the place of meeting from New York to New Jersey, showed his unfitness for the office he occupies. He lost an opportunity to capture this gang by practically giving them warning that all was not right and the suspicions of the swindlers must naturally have been further aroused by the later change of the place of meeting back to the Astor House. It was a bungling piece of business on the part of Chief Murphy, and no amount of persecution of telegraph officials should relieve him of responsibility for failure to capture these greengoods swindlers. Chief Murphy might just as well endeavor to persecute the mail clerk who handled the mail that carried the swindling circular, or the railroad or ferry companies that transported the swindlers from place to place, as to take the action he has just inaugurated. They are equally responsible with the telegraph people as aiding and abetting greengoods or any other kind of swindlers. As a matter of fact a telegram can be forwarded and reforwarded to any point so long as the sender is willing to meet the expenses.

On this subject Mr. G. H. Fearons, the general attorney of the Western Union Telegraph Company, made the following pertinent observation:

"It is nonsense to talk of collusion between our employees and 'greengoods' men. We are compelled by law to transmit all messsages which are not palpably improper for us to send, on account of profanity or otherwise. Do you suppose that in each of our 25,000 offices we could establish a censorship? How long do you suppose the public would tolerate such a rule? Our operators cannot pass upon the contents of a message. It is their business to receive and transmit whatever is given them that is couched in proper language. None of our men can divulge the contents of telegrams, except to the sender or sendee. It is not our business to assist the police in ferreting out criminals. It is our business to look out for the interests of our customers. We cannot go into the question of cross-examining our employees. Swindlers have used our wires many times before. The only way to stop the practice is for the government to order us to censor dispatches. I fancy the order would not be popular."

LOAN ASSOCIATIONS CONSOLIDATE.—On August 5 the formal transfer of the Electric Building Loan and Savings Association was made to the Serial Building Loan and Savings Institution, whose offices are located at 195 Broadway, New York. The latter institution will hereafter conduct the business of the former, as previously announced in these columns.

To legally effect the consolidation the resignations of A. B. Chandler, president; F. W. Jones, vice-president; Theo. L. Cuyler, Jr., treasurer; and E. S. Butterfield, secretary, were accepted and the places filled by the election of D. B. Mitchell, president; John Brant, vice-president; T. M. Brennan, treasurer; E. F. Howell, secretary. A number of the old directors of the Electric have been elected to the board of the Serial, and hereafter the boards of the Serial and Electric will be the same.

"Electricity Made Simple" is the title of a 233 page book; paper binding, 50 cents; cloth binding, $1. The author, Mr. Clark C. Haskins, of Chicago, is an old-time telegrapher, but has been engaged as an electrical expert for the past twenty-five years in the various branches of electricity.

This little work is not intended for the instruction of experts, nor as a guide for professors. The endeavor has been throughout the book to bring the matter down to the level of those whose opportunities for gaining information on the branches treated have been limited.

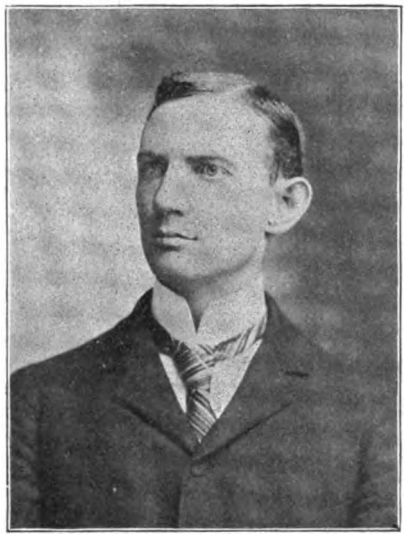
Those desiring copies of this useful work may obtain the same by remitting price to J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

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Benjamin Palmer Hancock.

Mr. B. P. Hancock, the newly appointed traffic chief of the main office of the Postal Telegraph-Cable Co., Chicago, Ill., was born at Centreville, Ala., on April 20, 1868.

He began his telegraphic career as messenger at Corpus Christi, Tex., 1881. He became an operator in the construction department of the Mexican National Railroad at Ojo Caliente, Mex., in 1883. In 1885 he entered the commercial service at Galveston, Tex. From October, 1891, to January, 1892, he was manager for the Postal Telegraph-Cable Co. at Chattanooga, Tenn. From there he was transferred to Nashville as manager of the same interest, which



BENJAMIN PALMER HANCOCK.

position he held until April, 1893. About this time on account of ill health he was obliged to give up telegraph work, and remained out of the service until 1897. In May of that year he re-entered the Postal service at Memphis, Tenn., where he was made chief operator. He was transferred in the same capacity to St. Louis in May, 1899, and thence to Chicago, as above indicated.

Mr. Hancock has the reputation of possessing ability in handling successfully large numbers of telegraphers. The appointment to his present position, therefore, gives him larger scope to exercise this important faculty.

To Relay Wireless Telegraph Messages.

It is now said to be possible to relay wireless telegraph messages. This relay consists of two kites. One receives the message and the other charges it with more force and sends it on.

The inventor says he is able to send a message 50 miles over land and then pass it through the relay apparatus, which he can manipulate at the starting point. He ventures the prediction that such stations could be established at intervals of 50 miles, repeating and forwarding the messages almost indefinitely.

You can't afford to be without TELEGRAPH AGE.

A Great Strike in 1883.

"Eighteen years ago, on July 19," writes J. H. McN., in the Toronto, Ont., Monetary Times, "was declared a strike of labor, which for a month paralyzed the business of the country, and, perhaps, in the history of the North American continent has been unequaled in its disturbing effect on commerce except by the present contest which the Amalgamated Association (Organized Labor) is waging in the steel works, etc., of the United States. My purpose was, as indicated in an article furnished you in 1893 on the subject, to take up and discuss the effect of the Telegraphers' strike upon telegraphy as a profession, judging it in the light of history. I find the subject has widened into many channels.

"The progress of electrical science; the almost universal use of the typewriter as an adjunct of telegraphic work; the vast increase in the employment of women in the service, and many other but minor matters of issue have made it difficult to include within the limits of an article, suitable for your columns, all material matter pertaining to his subject.

"I find a very wide difference of opinion as to the general results of the strike upon the character of the profession generally; but on one point—on two points, to be specific—there is a general agreement: The morale of the profession is distinctly better; the remuneration is as distinctly reduced.

"Now these two matters of fact involve direct conclusions: The large increase of women among operators has undoubtedly led to decreased remuneration; but the typewriter is yet more directly responsible for this change. Operators, who because of poor penmanship could never hope to get out of small or comparatively unimportant situations, now flood the country, and I fancy that to this 'improvement' more than to any other cause, is due the decreased earning capacity of the telegrapher. The conclusion is, therefore, that while the moral tone of the profession has been enhanced by the development of the woman-telegrapher, she has, with the aid of the typewriting machine, made the profession one affording but a precarious living for the male member engaged in the business.

"I have already, in the papers written for the Monetary Times in July, 1893, expressed my opinion of the move as a labor rebellion on a most chimerical pretext. It sent out on strike on July 19, 1883, some 15,000 or 20,000 telegraphic employees in the United States and Canada, and well nigh paralyzed commerce. The telegraphers, it should be remembered, were organized as a branch of the Knights of Labor, and their designation was 'District 45, K. of L.' What they struck for then was pretty much what employees in other directions are striking for to-day, namely, recognition of the organization as a body, whose leaders were to be treated with by employers. The 'Bill of Grievances' of 1893 did not ask for this, however, but asked for shorter hours; equal pay for the two sexes; and 15 per cent. higher pay all round. The Baltimore and Ohio Telegraph Company conceded part of what was asked, but refused to recognize District 45, K. of L. Roger J. Mullin, of Toronto,

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was the moving spirit of the strike in Canada, assisted by a very active man in Montreal. The telegraph companies remained firm in their attitude of refusal to recognize the Knights of Labor, and by August 15 the strike was announced by the strikers themselves to have failed.

"Now, to sum up what was the outcome of this remarkable ebullition.

"The strike resulted in these direct benefits to the telegraphers:

"Regular hours of labor;

"Pay for overtime at rate of salary;

"No compulsory Sunday labor;

"A better moral tone, and cleaner offices.

"But as every rose carries its thorn, so these benefits, great in the aggregate, have led to cheaper labor, enhanced by the vicious 'waiting list' now a characteristic feature of all important offices, where applicants for a job must wait their turn. This is a cleverly devised scheme by which a man secures employment at the pleasure of the manager; works at the pleasure of the chief operator, or traffic chief, and is paid only for the actual hours of duty performed. It has had its part in cheapening telegraphic labor, but I have called it vicious for a thoroughly different reason. It is a direct encouragement to the 'floater,' who works here and there as the wind blows and fancy pleases for a grub-stake and transportation to the next important town on his list.

"There is a sort of moral vagrancy about this, which not infrequently leads to evil results, to dissipation and worse, not to mention that in its use there is opportunity for much abuse of the individual rights of the 'extra' man, because it is generally assumed that if he possesses any such rights, he must keep them cleverly concealed. In this connection I have no reference either to this present locality nor to conditions existing across the border.

"I do not see any prospects, or even possibilities of another telegraphers' strike. If one comes, however, it will be many years from now; though we must not forget the exteremely rapid growth of the old organization of 1880 or thereabout and its prompt action taken when 'all were in' whom it were possible to bring in by any means. The atmosphere has cleared so far as one may judge from present appearances, and left the situation baldly clean.

"I deduce that the occupation of a telegrapher, while a most enticing profession, is not one to recommend a youth starting in life to take up."

Unnecessary Railroad Telegraphing.

The following circular, under date of July 16, has been issued by the Chicago, Rock Island and Pacific Railway Company, addressed to its employees. The subject is so important and timely that we publish it in full:

"It is desired to impress upon all employees the absolute necessity of lessening the amount of telegraphic business filed for transmittal over the company's wires at the present time. An inspection of the messages so filed, covering a limited period, leads to the conclusion that certainly 30 per cent., possibly 40 per cent., of these could have been forwarded by train mail without injury to the company's interests, and of the remainder a very large percentage could have been materially shortened by cutting out surplus words. Many messages are being sent to and from general and division headquarters which are filed at an hour in the afternoon when there is no reasonable probability that they can be delivered before office hours the following day and after the arrival of trains upon which these messages could as well have been forwarded. In many cases messages are being sent about trivial affairs scarcely worth the trouble of writing either a message or a letter. Messages of importance in themselves are often followed by one or more others asking why answer to the first is not forthcoming.

"It is feared that some employees are laboring under the impression that the number of telegrams sent is an indication of the importance of their duties and an evidence of the zeal with which they perform them. This mistaken idea, if held, should be dropped. The useless filing of a message, or the filing of one unnecessarily long, will be considered as a disregard of the company's interests rather than a desire to promote those interests.

"In the above it is intended only to suggest some of the ways in which telegraphic work can be lessened. However, each person making use of the wires must, from the very nature of the situation, be largely his own judge of the importance of his messages, but the full and hearty co-operation of all employees in an effort to relieve our wires of an unnecessary burden is expected."

Keeping Alaska in Touch.

Reports to the War Department from the military authorities in Alaska give assurance that the various projects for greatly extending the telegraphic service in the Territory will be fully carried out during the present season.

Capt. William R. Abercrombie is engaged with a large force of men in constructing the proposed military road from Valdes on the southern coast to Circle City on the upper Yukon, near the boundary of the British Northwest territory. At the same time the military telegraph line is being extended along that route, and it is expected that even before the completion of the wagon road the telegraph facilities over the entire distance, from the Gulf of Alaska to the Yukon, will be in operation. While this work is going on large detachments of army signal corps men are extending the telegraph along the Yukon, so that the means of communication between all the military posts in Alaska from east to west may be complete before winter sets in.

The work has progressed so far now that there is immediate need of operators for the various stations.

In these days when technical knowledge is of such value to the telegrapher who would master his profession, its acquisition becomes of supreme importance. A subscription to TELEGRAPH AGE will supply the information every operator needs.

A good advertisement for telegraph companies: Don't write, telegraph.

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Thomas H. Harper.

Mr. Thomas H. Harper, the newly appointed chief operator of the Western Union Telegraph Company at Toledo, Ohio, was born at Westhay, England, on February 5, 1864. His telegraphic career has been confined wholly within the State of Ohio, where for nearly twenty years he has been actively employed in his vocation, for it was in October, 1881, that he became a check clerk for the Western Union at Toledo. In 1883 he went out in the memorable strike of the operators, which was inaugurated on July 19 of that year. During the winter and spring of 1883 and 1884 he was with the Baltimore



THOMAS H. HARPER.

and Ohio Railroad Company at Newark, Ohio, returning to Toledo, however, in June of the latter year, where he re-entered the employ of the Western Union, accepting a position as operator in the Exchange office. From this date his promotion has been steady. In 1890 he was appointed chief operator of this office, and in 1896 was transferred to the main office, being promoted to the position of wire chief. His latest advancement was on July 10 last, when he received the appointment of chief operator. Mr. Harper has shown signal ability as a telegrapher, and quickly won the esteem and confidence of his official superiors.

Odds and Ends.

"Them women make me tired," said the First Telegraph Operator, as he opened his key.

"What's the matter, now?" asked the Second Telegraph Operator.

"One of 'em was just in here and wanted to know why we wouldn't let her put a postscript to a ten word message, without charging her extra. Said it wasn't part of the message, anyway."

THE SLIGHT USE OF AUTOMATIC OR MACHINE TELEGRAPHY.

BY EDWARD A. CALAHAN.

The question, "Why machine telegraphy has not been more generally adopted in America?" has been asked me many times, no doubt from the fact of my early experience in that branch of the art, and also that I have followed the improvements and developments with considerable interest up to the present time. I therefore have concluded to venture an opinion as to the causes.

The "Bain" was the first telegraph of the automatic class, and was practically used in this country in 1848 and 1849, but to a very limited extent. It was finally abandoned through want of a practical perforator, none having been invented up to that time. Omitting references to various foreign inventions relating to this subject for the reason that they had never been used or tried in this country, the invention of Bain was followed by that of John P. Humaston. The novelty of this invention was principally in his perforator. The transmitter and receiver were slight improvements on well-known instruments. The perforator consisted of a keyboard and a series or group of punches so arranged with reference to the keyboard that an entire letter of the Morse alphabet was punched by a single movement.

The motive power was obtained by the movement of two pedals worked alternately by each foot after each key representing a Morse letter was depressed. The resistance in punching the single dot "e" or the dots and dashes which made up the "period" was not appreciable. Finger power was not necessary beyond the selection of the keys.

The punches cut square holes in the paper tape. It will readily be seen that the contact brushes would make better and more uniform contacts through square than through round holes. This was proven in many tests on the lines of the American Telegraph Company.

The capacity of the perforator was limited to the skill of the operator, comparing favorably with the speed of the typewriter of to-day. The square hole did not always clear itself, and it was as necessary to read over and correct the punched slip before transmitting, as it was to translate it at the receiving end. With the slip carefully punched and doctored, 600 words per minute were frequently transmitted from New York and received in Boston in readable condition.

The American Telegraph Company was under contract to purchase this system. This company and the Western Union consolidated, the latter assuming all contracts made by the former. General Anson Stager, general superintendent of the Western Union Company; Austin F. Park, of Troy, and Hamilton E. Towle, of New York, both civil and mechanical engineers of prominence, were selected as a committee to make the final tests and decide on the speed most practicable and the value of the system. They started at 600 words per minute on a wire between New

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York and Boston, and reduced the speed gradually until they reached 300 words per minute, which they decided was the practical speed of the Humaston system. This being far below the Humaston claims, litigation followed, resulting in a verdict for Humaston; the apparatus then becoming the property of the Western Union Company, it was quickly reduced to the scrap heap, and the patents were allowed to expire. Thus ended the first real attempt to inaugurate automatic telegraphy in America.

Having personally managed all the tests of the Humaston system, and knowing from experience the uncertainty of the square perforation in practical use, I devised and patented a perforator, the principal feature of which was a wheel containing hollow-cutting punches arranged in line with the axis of the wheel, and containing the full Morse characters to be punched by one motion. The perforations were round, and, therefore, there were no corners to be cleared.

This perforator was never put to practical use, as the subject was not interesting to the Western Union Company, the only telegraph company in the country at that time, all others having been absorbed. Prescott, in his "History, Theory and Practice of the Electric Telegraph," page 135, after commenting on the Bain automatic theory, says: "Let this system be introduced and the imagination revel among marvelous accomplishments as it will, it cannot exceed the actual results which will be obtained. The question which will be at once raised by the reader is, Why, if this is practicable, has it never been accomplished?" This book was published in 1864.

On this subject Mr. Prescott had little more before him than the Bain theory. In his work entitled "Electricity and Electric Telegraph," 1877, with the knowledge of several improved systems, his comments are in noticeable contrast with those of 1864, at which time he was connected with the American Telegraph Company, which company was favorably disposed to an automatic system, and would have adopted one but for the consolidation above named.

Two companies with decided improvements on "Bain" have come and gone, not perhaps through any fault in the system, *per se*, as much as from other causes. The Automatic Company of the early seventies sold their patent for two or three millions of dollars of another company's stock, which they failed to get after closing up business. The American Rapid Company of the early eighties, notwithstanding that nearly 200 miles were covered to connect New York and Philadelphia, was doing a fine business and about paying its way, when a few Morse men got control, resumed key-working, and burst it up in short order.

The Wheatstone system, used so extensively in Europe, was started here by the Western Union Telegraph Company more than a decade ago, but has not been extended beyond its original limited district. Even the tape-printing machine of Hughes, with Phelps' improvements, an American product so extensively in use throughout Europe, has never expanded beyond New York, Boston, Philadelphia and Washington—one wire to each place. The Morse key has been the yardstick of carrying capacity in this country. When this limit was reached additional wires were strung, until it is our proud boast that with a much more sparsely settled population we have more length of wire per capita than any other country on earth, every mile representing about $150 of capital stock. This may be a good condition, but it does not hold out much promise for cheap rates.

At the present Morse speed the limit of lowness has been reached. It cannot be expected that this condition will remain indefinitely, it being known that a wire can be made to carry as much as 50 Morse operators can put into it.

There have been reasons, commercial, mechanical and prejudicial, for machine telegraphy's hard road. The commercial reasons grew upon the basis of miles of wire, instead of carrying capacity being recognized as the proper basis of stock capitalization. The mechanical reasons had some foundation in the imperfections of systems, and the prejudicial reasons, perhaps most powerful of all, arose from the disinclination of operators to adapt themselves to any new way of working. It has been charged, and correctly, I believe, that of all nationalities, the American operator is at once the most proficient and the most prejudiced. He excels at the Morse, but will learn nothing else. He was the first to read by sound. He murmured at the duplex, kicked at the quad., and has looked with still less favor upon working a perforating machine for automatic telegraphy. Such prejudice was fully known to the Western Union Company when it was obliged to import all the perforating and other operators from England to equip the Wheatstone system. Humaston was well aware of it, and was obliged to educate young men who had no previous knowledge of telegraphy.

The exceptions to this prejudice are the men who have left the ranks to fill better positions in the service. These perforating machines have been improved from time to time by various inventors, but none of them have appealed to the fancy of the key operator, and companies have been reluctant to introduce a separate set of operators for machine telegraphy alone.

The three-keyed puncher of the Wheatstone system contains two keys more than the Morse operator cares to use. One has always been quite enough for him, hence the necessity for imported labor. It may prove as well that the three-keyed did not operate, or that keyboard punchers have not appealed to popular favor, for necessity, often the mother of invention, has within the past few weeks brought out a perforating machine which is operated by an ordinary Morse key, and without any more labor, care or concern on the part of the operator than is imposed by the operation of a city line circuit.

The machine is up to the speed of the fastest manipulator, and can be worked a thousand miles

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away or under any conditions that a relay and sounder can be operated. The perforated tape may be used for transmission at 2,000 words a minute, and messages recorded in plain dots and dashes at the receiving station, or it can be run through at top Morse speed and taken by sound and type-written. Business can be collected from outlying places already punched at the speed of the branch operators and put on trunk lines at any speed required. In Morse transmission the tape would average double the speed of key transmission, and this, without crowding the typewritist at the other end.

Taking into account the inroads of the telephone on the telegraph business, the small number of telegrams carried—about one per head per year—the necessity for cheaper rates and greater volume is apparent. In connection with this important improvement by P. B. Delany, which makes every operator in the country a perforator as well as a key man, it would seem that great changes in telegraphy are close at hand, and when the letter-carrying telegraph starts long-distance telephony will feel it sharply, for no talking machine can keep up with a 2,000-word-per-minute recorder.—Electrical World and Engineer.

Paraguay Telegraphic Service.

A telegraph line from Asuncion to Paso du Patria has been constructed, a cable being placed at the intersection of the Tebicuary River, so as to avoid the continuous interruptions by the boats navigating that stream. Another cable crosses the Paraguay River at Nueva Franca, joining the Paraguay telegraph line with that known as the Chaco line of the Argentine Republic. There is also in process of construction a telegraph line from Humaita to Curupayty, where another cable will be placed which will unite the Paraguayan line with that of the Argentine Republic at the colony of La Palma. Paraguay will then have three telegraph lines connecting the Republic with the rest of the world. Two other interior lines, one to the north and the other to the eastern part of the Republic, have been authorized by acts of Congress. The number of domestic telegrams sent in 1900 was 35,218. In that year 25,075 telegrams were received from other countries, and 23,276 telegrams dispatched to places outside of Paraguay.

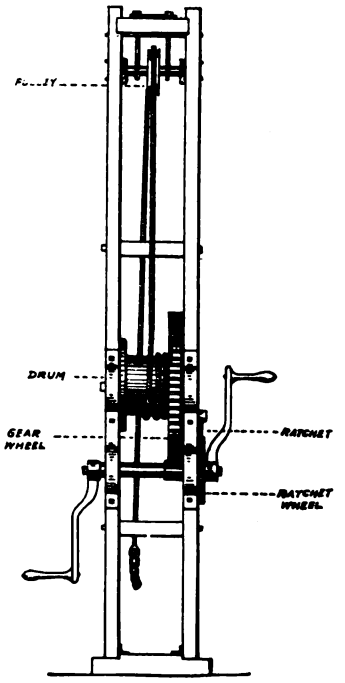
The underground telegraph cable which the postal authorities have just completed between London and Birmingham, England, in place of the overhead wires, is the longest subterranean cable in the world. It is 117½ miles long.

John Smith, a member of one of the day forces, was recently discharged because the management could not recognize his copy. He used fifteen different makes of typewriters in the performance of his daily labor.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for a sample copy of the Convention number, September 1.

A Pole Pulling Machine.

Mr. C. H. Bristol, general superintendent of construction of the Western Union Telegraph Company, Chicago, is the inventor of a pole or stump pulling machine which we illustrate herewith. This device has given excellent satisfaction wherever it has been tried, its work being accomplished with great ease and promptness. Many months' trial of the machine has convinced the inventor, and those who have used it, that it is a success and will prove to be of



BRISTOL'S POLE PULLING MACHINE.

great utility, especially in the resetting of poles and also the pulling of poles where lines must be moved. It pulls the poles or stumps without any digging. Construction parties will find this an admirable device to have handy in all construction and reconstruction work. The diagram of the machine needs no detailed description. It clearly shows the construction, and no doubt Mr. Bristol will be glad to furnish any additional information that may be required.

First Wireless Telegraph System.

Mr. John Mitchell, night telegraph manager of the New York Herald, has taken four expert operators to Nantucket light ship to introduce the Marconi system of wireless telegraphy. He will supervise the work until it is well under way, when he will return to his position at the Herald office.

The men who have the honor of being the first Americans in this new field for telegraphers are Messrs. Thos. Tierney, J. J. Kelly, R. Pfund and N. S. Muscal, lately employed by the Postal Telegraph-Cable Company, New York. All four are expert telegraphists, in both the Morse and Continental codes.

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Rapid Telegraphy.

The average practical telegraph engineer has a deep-rooted distrust of rapid telegraphy, including in that class any and every system which requires the transcription of messages to fit them for automatic transmission. The old original Morse, only slightly modified for convenience, has held its own in a fashion that is little short of marvelous. Improvements have come and improvements have gone, but the hand key of half a century ago still dominates the art. Of course, in much telegraphic work the operation of transmission is greatly shortened by conventional abbreviations forming a species of code, but the process remains essentially the same. Every one admits the desirability of increased speed, enabling a single wire to do the work of half a dozen, but there is a general dread of the ensuing complications, both as to apparatus and methods. Both here and abroad the Wheatstone system has come into some use on important lines, but it has by no means taken the place that at one time seemed probable. Inventors are wonted to lay the non-success of rapid systems at the door of the telegraph monopoly, declaring that its cautious conservatism has impeded the experimental adoption of various more or less promising systems. On the other hand, it is contended that the great telegraph companies of the world are not in business for their health, and that a change in the art that would afford an opportunity for increased profits would assuredly not be unwelcome. The conservative element will even admit that the apparatus of some of the rapid systems has been beautifully worked out, and is by no means forbidding in its complication, so that failure in the technical sense cannot fairly be cited as a valid reason for non-success in practical operation.

It will not be without interest, therefore, to consider the question from the standpoint of those who view rapid telegraphy with disfavor. One of the objections offered is that such systems have a certain unwieldiness, pertaining rather to the systems as a whole than to their technical operation. In sending a telegram there is a certain amount of lost motion. The message is written upon the blank, turned in, and then passed along to the operating room, and put on the operator's hook. In due season it is sent over the wire, transcribed on a typewriter at the receiving station, and is then passed over to the delivery system. The total time taken in this process is mostly occupied with other things than the transmission itself. As a matter of practice it may take an hour, more or less, to get the message from the sender in New York to the receiver in, say, Washington. On the average, the transmission only takes a minute or so, and the remaining 59 minutes are devoted to delivery and to waiting, including the time taken to get the message to the sending office. No actual shortening of the time of transmission can save directly any material time in ordinary business messages. With the Wheatstone system the message might actually be sent in, say, two seconds, a gain entirely trivial from the standpoint of the public. A far greater gain can be made in the increased capacity of lines, giving a short wait prior to transmission. But on any automatic system the written message must await its turn at the perforating machine, and in systems like the Wheatstone it must also await its turn for transcription, which lessens, or even quite negatives, the advantage gained by added capacity of the lines. And a telegraph boy will not put on more pace for an automatically sent message than for any other. As a result of these conditions it is held that there can be no heavy pressure of public opinion to force the adoption of rapid telegraphy, that the real gains are in a somewhat lessened operating force and in increase in line capacity, which are felt inside the telegraph company rather than by the public; that a great increase of speed, say, to several thousand words a minute, would not affect any except a very small number of trunk lines, and would not be felt by the public at all.

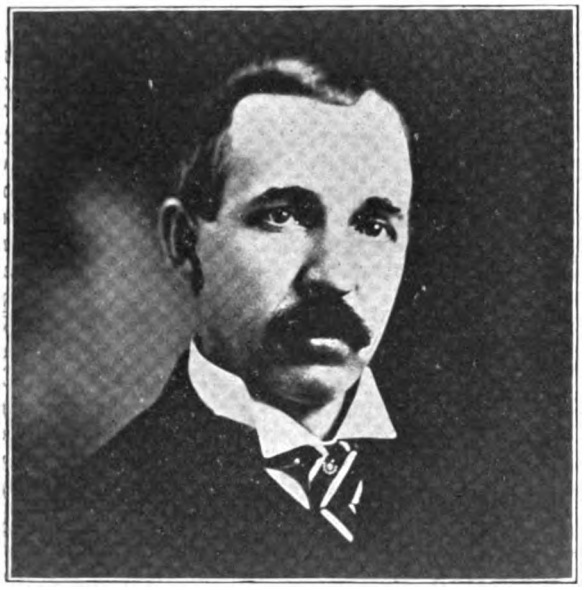
From this standpoint, improvement should be looked for in the direction of automatic reception in printed form, even at rather moderate speed, more than in a greatly quickened rate of transmission. This eliminates one step of the operating process entirely and effects a material saving both in time and money. Practically, printing on a tape is objectionable, so that automatic page printing is the real desideratum. This has been successfully accomplished in more than one apparatus, and, as may be known to some of our readers, the beautifully ingenious Buckingham system has been in steady commercial use on one of the most important trunk lines in the country for many months past. The automatic delivery of messages neatly printed on regular blanks ready for distribution is a most important step, but the original transcription of the message into the form of perforated tape still remains rather a stumbling block. A perforating machine capable of being worked at any considerable speed is not a simple affair, and while it can in practice be worked much faster than a Morse key, it has been held to be an inconvenient necessity. In certain classes of work, such as press dispatches, it might be possible to prepare tape outside of the telegraph office, but the objection is made that such a process has its limitations—a rapid telegraph system being likened to a four-track railway, which needs heavy traffic to bring out its economic value. To a certain extent it may be able to build up its own traffic through increased facilities, but under the present organization of the telegraph industry there seems small chance of the tariff being put down to a point that will justify very extensive use of the service for general communication. It is admitted that possibly in the event of a postal telegraph system being established, automatic telegraphy might come into far more extensive use than seems likely under present conditions, but save for some such contingency its functions, while highly important, seems likely to be confined within rather narrow lines. As we have frankly advocated automatic telegraphy, we present the above statement of the other side of a question which is progressively assuming more importance.—Electrical World and Engineer.

A subscription to TELEGRAPH AGE is one of the best investments a progressive telegrapher can make; it keeps him thoroughly posted.

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Frank C. Hackett.

Mr. Frank C. Hackett, the newly appointed chief operator of the Western Union Telegraph Co. at Cleveland, O., was born in Union City, Pa. He first entered the Western Union Telegraph service at Westfield, N. Y. During 1879 he worked for the Lake Shore & Michigan Southern R. R. Co. at different places, re-entering the service of the Western Union at Cleveland, O., in 1881, where he remained until 1883. He then went with the Missouri Pacific Railroad Co., being employed in their general offices at St. Louis, Mo., from 1883 until 1887, when he broke down in health. He was



FRANK C. HACKETT.

then transferred to Pueblo, Col., to which point the Missouri Pacific had then just extended its line. There he remained until the fall of 1887, when he went to Toledo, O., for the Western Union, first as operator, then wire chief, assistant chief operator, finally receiving the appointment for chief operator of the Toledo office October 1, 1900, relieving Mr. Charles O. Brigham, who retired from active telegraph service. His present appointment as chief operator of the Western Union at Cleveland, O., took effect July 10, 1901, and is a fitting recognition of satisfactory service rendered.

ANOTHER ALASKA CABLE.—Mr. George F. Porter, New York, manager for Mr. W. R. Brixey, manufacturer of Day's Kerite Cable, left Seattle, Wash., a few days since on a specially chartered steamer fitted up with cable appliances to lay 126 miles of submarine cable to connect Juneau, the new capital of Alaska, and Skagway. The cable laying will be under the supervision of Mr. Alex. Kline, the cable expert of the Western Union Telegraph Co., New York. This cable is being laid for the United States Government under order of Gen. A. W. Greeley, chief of the signal corps.

LETTERS FROM OUR AGENTS.

LOUISVILLE, KY., POSTAL.

It has not been a comfortable task handling the extra large amount of business this summer with the thermometer at times 108 to 110 above. We all await impatiently for the welcome "off" hour, and take an early departure.

Manager Cooke is enjoying a much needed vacation, Chief Operator O. W. Krider managing the affairs of the office during his absence.

Operator John L. Benninger is enjoying himself on a leave of absence, visiting relatives in the country.

Operators Jas. M. Carter, Jas. J. Clary and J. A. Cahoe have been on the sick list lately. During the absence of the latter, Branch Office Operator C. A. Cuneo did good service in the main office.

Mr. Robert Rogers, who worked recently in Memphis, Tenn., and Paducah, Ky., is with us again on the extra list.

Mr. Alvin Silverman has recently been promoted from branch manager to main office duty, James McDonald taking his place in the Produce district.

Mr. John T. Rogers, who worked here some time, but who is now located in Vincennes, Ind., was a recent visitor.

PHILADELPHIA, PA., POSTAL.

The pony wires leading to the various produce districts are kept humming. In order to facilitate the service Manager Len. Greiner, of the Vine street office, was furnished a direct wire to Augusta, Ga., while Manager Chas. Stump, of the Dock street office, kept four men on the jump and reports having experienced his heaviest spring season's business in all the many years he spent in that district.

Manager Stump, in company with Wire Chief Miles Dunn, of this office, will spend several weeks on a vacation tour to points down East.

Night Manager John A. McNichol is off on a vacation trip, his objective points being East Stroudsburg, Pa., and Buffalo, N. Y.

A fishing trip of a week's duration accomplished wonders for Frank Holloway, of the first New York bonus wire.

Two weeks off, on pay, with his employer's compliments, was the favor enjoyed by Mr. Albert Weiss, employed in a broker's office.

Mr. Chas. T. Koch has resigned, accepting a more lucrative position with the Western Union. Mr. W. C. Cornell, with this company at the Bourse branch office, has also gone with the Western Union for similar reasons. Mr. Cornell has been succeeded by Mr. Wm. Burt, Jr.

Mr. C. P. Monett has returned to New York city.

Owing to a severe attack of stomach trouble Mr. H. P. Ruffee was compelled to remain away several days.

The Cable wire is now manned by Mr. Jay A. Thomas. Mr. Courrier, the regular operator, will not return before September 1.

By the transferring of Miss Bertha Sigg from Conshohocken, Pa., to Atlantic City, N. J., Mr. F. E. Greene, of the former place, is obliged to at-

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tend to everything himself pending future arrangements.

Mr. William Hagan is now second Postal man in the telegraph department of the Philadelphia Record.

Much sadness and sympathy is expressed at the untimely death by consumption of Miss Ella Grady, of the Service Department.

The services of a quad chief at the Atlantic City main office have become so imperative that Mr. Merrick has been transferred there for the remainder of the season.

Mr. H. C. Wooden, of Washington, D. C., was a recent visitor, being shown around the city by Mr. Chas. Stump.

Has your arm played out? Is your sending laborious? Make your work a pleasure by using the Twentieth Century Key. Terms and information cheerfully furnished. Address Leo Miller, this office. (adv.)

NEW ORLEANS, LA., WESTERN UNION.

Mr. Geo. Carroll has gone to Franklin, La., and Mr. Geo. Johnston to Buffalo, N. Y. Mr. Frank Bell is spending a vacation at Madisonville, La.

Mr. Thomas Steene has been advanced to the Wheatstone force.

Cashier J. L. Adams recently paid a flying visit to Beaumont, Tex.

Mr. Samuel Garland has been assigned to Ball Park.

Manager J. R. Terhune was recently elected a member of the Southern Yacht Club and also a member of the Transportation Club. Of the latter organization he has been appointed a member of the governing committee. This is a new club composed of the most prominent transportation men in this section and bids fair to be one of the finest clubs of the South.

Mr. R. L. McKibbins' many friends will be glad to hear of his appointment as traveling passenger agent of the Southern Pacific, with headquarters at San Antonio, Tex.

Mr. O. C. Johnston has gone to Chicago, Ill.

Mr. W. A. Pillow is on a vacation trip to Virginia.

MONTREAL, QUE., CANADIAN PACIFIC.

Mr. Reginald Ross, of the Great Northwestern, has returned from a brief trip to Quebec.

Mr. Mike Sheridan, of the Great Northwestern, has accepted a position with the same company at Quebec.

Mr. W. Watts, of Toronto, Ont., has been added to the force.

Miss E. M. Rivers, of Dowd's broker office, has returned from Lake Memphremagog, where she enjoyed a two weeks' sojourn.

Much sympathy was felt for Mr. J. A. Fortier, of the Canadian Pacific office, on the death of his infant son, July 31.

Mr. W. G. Medley has returned from Sudbury, Ont., where he had been for a few weeks relieving.

Mr. P. J. Ryan, having accompanied his family to Magog, where they will spend the summer months, has returned after a brief absence.

Some of the men are disappointed at not being able to secure substitutes in order that they may take a vacation.

Mr. O'Sullivan, of the receiving department, is absent on a vacation.

Mr. R. L. Bamford, superintendent of telegraph of the New York Stock Exchange, accompanied with his wife, is in the city. He is a guest of his brother, James P. Bamford. They will also visit Valcartier, Quebec, before returning to New York.

A grand old time is anticipated here next month, when the Old-Time Telegraphers meet. There are quite a number of old-timers in this city, and friendly greetings will be the order of the day when the visitors reach here.

DENVER, COL., WESTERN UNION.

Mr. F. L. Carswell has gone to Manitou as manager during the busy season. Miss Stagg, of Omaha, is spending her vacation with the Western Union, Denver. Miss Ada Guernsey spent a month at Salt Lake and other points. Assistant Chief Operator J. E. Jenkins has returned from the Buffalo Exposition, having been absent a month. Miss McChesney spent her vacation in the mountains of Colorado. Manager Altberger left yesterday for the San Juan country to be absent for some time. Arrivals: A. R. Zimmerman, Messrs. Parks and Gibson, from El Paso; F. A. White, Salt Lake; Mr. Fleming, city; W. H. Curtis, from Trail, B. C.; E. E. Evans, Chicago; C. F. Keil, St. Louis; Mr. Powell, from the Postal, St. Louis; Thomas McCabe, Western Union, Burlington, Iowa; Mr. Pullian, Western Union, Omaha; Mr. McConaha, Logansport, Ind.

KANSAS CITY, MO., WESTERN UNION.

Mr. Ray F. Finley has shaken the Kansas City dust from off his feet and gone to Maumee, O., where he has entered the employ of the Long Distance Telephone Company as assistant wire chief. He is a son of Mr. Chas. H. Finley, assistant chief operator of Chicago, Ill., Western Union.

Mr. A. R. Pippitt, night quad chief, is off for a two weeks' visit with relatives and friends in Texarkana, Ark.

Mr. Harry Bristol, for a long time one of our split trick force, has gone to St. Louis, Mo., to work for the same company.

Mr. John J. Shelly, Miss Nellie Miller and Miss Lulu Lentz are all back at work after reveling in the fresh air and sunshine of the altitudes of Colorado.

On the morning of July 22 came the announcement of the death of Miss Florence A. Thompson, and although not entirely unexpected, the news proved quite a shock to her former associates and was received with the utmost regret. She had worked in this office continuously for the past twelve years, was an unusually bright young lady and possessed of all the higher and most refined traits of womanliness and Christian character and will be sadly missed among us.

Mr. Bert. Stump resigned to take effect August 1. He goes to Pueblo, Col., as manager of the Postal Telegraph Company's office. As he has had

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ten years' experience in like capacity, we know that that company will have no cause for regret for having secured his services.

Of the late arrivals, Wm. H. Heyser, Chas. H. Doyle, I. L. Printz, Geo. M. Riggin and Oliver C. Cook have been assigned to split tricks; and Jas. M. Angell, A. L. Shipman, A. R. Young, W. C. Hill, H. W. Breitenstein, J. W. Reilly, A. L. Stock, Wm. H. Meacham, Wm. H. Peacock and Hattie E. Daniels, on extra list.

ST. LOUIS, MO., WESTERN UNION.

Mr. and Mrs. Geo. W. Brownson, of Kansas City, Mo., visited us July 27.

Mr. Geo. M. Hardy, our night counter clerk, left for an eastern trip July 11. His first stop will be Buffalo, where he intends spending a week, thence to New York.

A very enjoyable and successful event was the lawn party given by Mr. Joseph Barry, July 13. Among those present were Misses Etta Osterman, Annie Shevlin, Elizabeth H. Tanner, Viola Hart, Bertha Keller, Jeanette Carpenter, Susie Bland, Sarah Cunningham, Lottie Wise, Grace Quehl, Deall Pipe, Mattie Ketcham, Bertha Black and Agnes Moore; Messrs. Joseph Barry, Thomas Gibney, James Wilson, Raphael Johnson, Moe Frankel, Daly Knapp, Henry VanDam, Wm. O'Neil, Samuel Bland, James Black, Percy Carpenter, John Cunningham, William Covington, James Moore and John Billings; Dr. and Mrs. H. B. Lida, Mr. and Mrs. A. B. Franklin, Capt. and Mrs. A. H. Smith.

Mr. B. F. Ramsay, manager of the Western Union at Tipton, Ind., was a recent visitor. He expects to visit Little Rock, Ark., and Denver, Col.

Miss Constance Brooks, a sister of Miss Portia M. Brooks, was chosen as the most popular lady stenographer of St. Louis, and left for a visit to the Buffalo, N. Y., Exposition, July 22, as a result of a vote contest held under the auspices of one of the St. Louis evening papers.

Mrs. Annie Cassidy and her daughter Agnes, left recently for a visit of several weeks at Chicago.

Mr. Jas. B. Dillon, traffic chief at Louisville, Ky., spent several days of his vacation in St. Louis the latter part of July; from here he went to Waukesha, Wis.

Mr. and Mrs. Wm. Schroeder spent a week at Eureka Springs, Ark., the latter part of July. Mr. Schroeder has charge of the City News Department. Mr. Sol. Ure was in charge during Mr. Schroeder's absence.

Mr. J. E. Johnson, night chief operator at Houston, Tex., while on his way recently to Buffalo, N. Y., spent several days here.

Business is exceptionally good and there is a premium on operators.

The latest is to date your letters "1903" instead of "St. Louis, Mo."

CHICAGO, ILL., POSTAL.

Messrs. E. P. Whitford, Ira Adkins, C. E. Rollins and J. R. Sullivan represented this company at The Onwentsia Golf Club, at Lake Forest, Ill., several days lately.

Mr. J. N. Swift was handled very roughly by two men on the way home the other night and was relieved of a few valuables, but the next day he met the two guilty parties and at once took steps to have them taken care of. They are now in safe quarters.

Mr. C. W. Potter has recently returned from a ten days' vacation; he was relieved by Mr. B. C. Elder as night chief operator.

Traffic Chief George Durand returned recently from his vacation. Division Chief P. F. Miller was away last week.

Mr. Arthur Lassman has been appointed regular at The Associated Press, vice "Dock" Allen, resigned.

Mr. Newall Swift, of New York bonus wire, nights, has recently composed the words and music for a home song which he has entitled "Lauralee," and has dedicated it to his three-year-old daughter by the same name. He expects that it will be through the press this week; when it does, Mr. Swift desires to introduce the work among his friends and brother telegraphers.

The baseball teams at the Board of Trade Postal office have just played their sixth game, the last one resulting in a tie for the season, each team having won three games each.

Mr. Henry Paxton has returned from an extended visit in Mississippi.

Departures: Miss Hahn to the Western Union; Mr. Bowman to St. Louis; Mrs. Thiedie to the Western Union; Mr. Stryker to Bartlett Fraser; Mrs. Assmussen to Western Union; Mr. Uhel to New York, and Jerry Murphy.

Arrivals: Messrs. T. M. Schnell, Hyale, Paxton, Garfield, McPherson, Lowe, Brady, Holub, Lancaster, Knapp, Ward, Miller, Strong, Whiton, Townsend and Errett.

CHICAGO, ILL., WESTERN UNION.

Manager I. H. Carpenter, of Janesville, Wis., who has been sojourning among us for the past few months, has returned to his old position as manager. Mr. Carpenter is well known and liked by all here. Mrs. Carpenter has just recovered

Deafness Cannot be Cured.

by local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure deafness, and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian Tube. When this tube is inflamed you have a rumbling sound or imperfect hearing, and when it is entirely closed deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but an inflamed condition of the mucous surfaces.

We will give One Hundred Dollars for any case of Deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars, free. F. J. CHENEY & CO., Toledo, O.

Sold by Druggists, 75c.

Hall's Family Pills are the best.

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from a serious illness, which necessitated a painful operation.

We are pleased to hear of the promotion of George Flood as operator from chief check, which trust he held with the utmost integrity.

Quite a while ago a party of some gilt edged operators started for the Pacific Coast to accept positions offered by the Western Union to operate some new lines which had been erected. But their stay was of short duration. Oscar Dogge, who was one of the party, and has just returned, reports that a more homesick lot of Chicago boys never left this good old town, and we look for the eventual return of all.

Mr. Burdick has been away on sick leave.

Mr. C. R. Copeland has returned from a trip in the mountains of Colorado.

Dr. Brand has also returned from a tour among the mountains of the West.

Another quiet marriage was performed at Hancock, Mich., July 27. The principals were F. J. Spickler and Miss Nellie Blackwood.

A section of the bookkeeping department in this office was cut off and converted into a neat room in which is comfortably housed the Buckingham department.

Mr. John Obrien, chief of the Wheatstone, is visiting in Danville, Ill.

NEW YORK, WESTERN UNION.

Martin J. Dixen, an old telegrapher, well known in telegraph circles, has taken a lease of the Third Avenue Theater, New York, and opened the regular season August 10 with the telegraph play, "The Limited Mail," written by Elmer E. Vance, also a telegrapher. Friday evening, August 16, will be known as "telegraphers' night," when a representative telegraphic audience is expected to be present.

Mr. Thos. Brennan, assistant manager, has returned to the office after spending a pleasant vacation on Long Island.

Mr. A. E. Sink, manager of the operating department, is absent on a brief vacation.

Mr. J. A. Osborne, an operator at 195 Broadway up to 1890, when he went to Buffalo to enter outside business, died at that point on July 28.

Oscar A. Brown, one of the old-time engineers of the building, died August 7.

The mother of Mr. John F. Pender died August 4.

Two new cabinets containing thirty-two apartments for typewriters have been placed in the eastern division for the benefit of ladies and those who are unable to carry their "mills" downstairs.

The operators who were at Pittsfield, Mass., sending report of the Fosburg trial, comment favorably upon the hustling qualities of Manager J. A. Prentice. Nearly 500,000 words were sent by his small force in ten days.

Appointments to Waiting List: H. Fraser, A. B. Palmer, John L. Boyle.

Resigned: W. W. Walsh, J. W. Loughlin, J. W. Riley, H. H. Heard.

H. N. Babcock has gone with the True American, Trenton, N. J.

Jesse Alexander has resigned from the regular force and gone on broker list force.

On Vacation: Geo. W. Patterson, W. A. McAllister, J. P. W. Mitchell, Frank D. Murphy, Daniel E. Pike, W. A. Platt.

Mr. J. J. Hope is at Saratoga helping out at the race track. M. J. Kenna is also at the Springs, as well as M. J. Fitzpatrick, who is a guest of one of the prominent citizens.

Mr. M. F. Garrett, our efficient all-round mechanic, accompanied by his wife, is doing the Pan-American Exposition.

Sick List: Perry Irish, John Rathbone and H. W. Sauer.

Mr. George Worzel is sick and appendicitis is feared, trouble for which he had an operation a few years ago.

Robert Black Emerson, for many years an operator for the New York Herald on first Associated Press wire, died of pneumonia in Brooklyn, N. Y., on July 17. Mr. and Mrs. John Seymour, Mr. and Mrs. John Mitchell, Mr. and Mrs. P. H. Flynn, Mr. Wm. McKiernan and Mr. J. W. McLaren attended the funeral.

The sympathy of all is extended to Mr. Theo. B. Fullon, of the Philadelphia Printer, whose wife died August 12. Interment was in Philadelphia.

Mrs. C. A. Hastings-Mauer, of this office, has sufficiently recovered to be removed to Easton, Pa., where she will remain for a few months.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

Artistic and mechanical drawing by J. B. Barrett, 195 Broadway, New York. (Adv.)

NEW YORK, POSTAL.

Assistant Manager J. F. Skirrow has returned from a vacation and looks as if he had thoroughly enjoyed it.

City Night Chief George Blank and Messrs. J. B. and Irving Roloson are on duty again after vacation absences.

Mr. T. B. Goodwin, after a long absence, is back again and has been assigned to the Chicago bonus wire.

Mr. G. O. Heath has been transferred to the Produce Exchange.

Messrs. C. A. Moore, Theo. F. Taylor and T. G. Williams have been transferred from night to day force.

D. J. Ellington and J. J. Horner have resigned and left for the West.

Mr. Victor Benelisha, formerly of the Mail and Express Postal force, and more recently with a downtown broker, has returned and been assigned to the Western division.

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Mr. H. L. Linder is still absent on account of illness.

Mr. J. B. Rex, night wire chief, south and west, is absent on vacation.

The 20th Century Key is steadily gaining favor with the force, quite a number of them being in use. As a relief key it is proving invaluable, improving not only the grip on the regulation key but restoring loss of grip from using a pen.

Dots and Dashes on the Theatrical Stage.

Those who have seen the play of "Secret Service" are familiar with the important role which the telegraphic key and sounder play in this story of the tangled heart-strings of a northern spy and a southern girl.

One day before the play had been put in rehearsal it occurred to Mr. Gillette, the manager, that there must be a great number of people in New York city who could read the dots and dashes of the telegraphic code. Communication with the managers of the Western Union Telegraph and the Postal Telegraph-Cable companies and The Associated Press revealed the fact that by conservative estimates there were between five and six thousand people on Manhattan Island who were making a livelihood by manipulating the dainty dots and dashes of the Morse alphabet. He figured that, including operators temporarily out of work, students in schools of telegraphy and those who at some former time had acquired practical knowledge of the key and sounder, the total would probably reach 10,000.

"Now, that's a nice proposition," he said to himself. "I wonder what percentage of that 10,000 would come to see 'Secret Service.' Two or three of the lithographs that Alf. Haymann is getting up for the play picture the telegraph scene, and if by any chance the play makes a hit, I should imagine those 10,000 operators would naturally be attracted in pretty good force."

By this sort of mental route it didn't take long to reach the conclusion that it was artistically and commercially necessary to have "real" dots and dashes on the stage in the new war play. Joseph Humphreys, who, as general stage manager for Charles Frohman, has much to do with engaging actors, was notified, and immediately a search was instituted for an actor who was also a telegraph operator, to play the part of Lieutenant Forey, who sends and receives nine-tenths of the telegraphic communication in the play. Meanwhile Mr. Gillette himself set apart two hours every afternoon for rehearsing the correct dotting and dashing of the fraction of a message which he has to send. An old telegrapher out of a job was also engaged to stay behind the scenes and send the dispatches and calls which are supposed to come from "the front."

It was this old telegrapher who made all the trouble—or fun, whichever it was.

The play was finally produced and everything moved along beautifully until the latter part of the first week. The telegraph scene is in the third act. During the act people on the stage and those who were near it in the audience noticed that Lieutenant Forey, the chief operator, seemed convulsed with laughter. Meantime one of the men who had come out into the lobby after the act to smoke a cigarette went to the box office window.

"Great show you are giving in there," he said; "but I guess if Mr. Gillette and the company and the audience knew what I do there'd be a riot in there."

"What? What's that? What do you mean?" asked the treasurer.

"Oh, I'm a telegraph operator myself, that's all, and I was able to read the messages that were received over the wires. They were corkers, I tell you."

"They were, eh?"

"Yes. For instance, you know that message that comes in 'for the Secretary of War, marked important?' Well, this is what was in it," and the man took an envelope out of his pocket and read:

"'Hello Sec., old boy. Hope this is hot enough for you.'

"Then a message comes in and the operator gives it to a messenger and says:

"'For the President, marked private. Hurry over to his house with it.' Now, you'd imagine there was something vital in that dispatch, wouldn't you? Well, here it is: 'Say, Jeff, you'll be shy of operators over here if this heat keeps up. Hotter'n the devil, ain't it?' Then after a while, you know, Mr. Gillette comes on as Captain Thorne. At a certain opportune point the little ticker opens operations again, and Captain Thorne announces that it is a message from Adjutant-General Chesney. The audience, you understand, has been worked up to the belief that this message is of absolutely the utmost value in the important matter of saving the hero's life. And while the audience held its breath I held my sides, for this was the purport of the redoubtable General Chesney's weighty message: 'Oh, Lord, how hot! Say, Captain Thorne, smoke up! Let's finish this act quick. It's as hot as (you know) in this stuffy hole I'm in. If there is any other operator in the audience he can have my job.'"

When Mr. Gillette was informed of this circumstance next morning, he said to the stage manager: "Inform your friend, the old telegrapher, that in diplomatic language he is persona non grata. I'll be hanged if I am going to be called names by my realistic dot-and-dash man just for the sake of pleasing the telegraph operators who happen to be in the audience. No, by Jove! We'll have the messages sent in by the stage carpenter or the property man. They know more about telegraph poles than they do about dots and dashes, and I guess our reputations will be safe in their hands."

And this has been the method of procedure in the telegraph scene of "Secret Service" ever since.

GAELIC BY TELEGRAPH.—In connection with the opening recently of the Letterkenny Cathedral, a great amount of Irish matter, says the Telegraph Chronicle, of London, England, written in Irish characters was handed in at the local telegraph office for transmission to the Dublin press.

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Courtship by Wire.

A telegraphers' romance which had its beginning in Massachusetts six years ago will end in a Rhode Island wedding September 2.

A young lady operator in a Massachusetts town has been wooed and won by a train dispatcher of the Consolidated Railroad after a long courtship by wire. The lady was the only woman on the circuit, and her messages, always clear and sharp and business-like, soon made her a general favorite with a dozen other operators, all of whom introduced themselves by wire, and between dispatching trains made bids for her favor.

They met with only indifference until the train dispatcher, who was stationed in Providence, began to exchange confidences with the long operator at the office where the young lady was employed. He did not know his friend at the other end of the wire was a woman, and his uniform courtesy appealed to her.

After more than five years of this long distance acquaintance, photographs were exchanged, and the young train dispatcher was promoted to the Worcester division. He lost no time in calling upon the young lady, and she has just tendered her resignation, to take effect next month.

A Plea for Postal Telegraphy.

(Contributed.)

One of the questions bound to come to the front before many years is that of government ownership of telegraph lines. Many thoughtful persons oppose any step in the direction of governmental ownership of public utilities on the ground that it tends toward socialism. But there are two safe rules to apply in testing the desirability and defensibility of public ownership. First, is the utility one of the highest public necessity, and is it of general and universal use? Second, is it one in which the operating expense and the number of employees necessarily engaged are small as compared with the amount of capital needful for plant and outfit?

No one, not an extremist, will deny the truth of the first proposition. The government ought not to engage in any business of local or sectional nature. Unless the utility is one in which all the people are interested, and which is the servant of everybody, government control thereof cannot be justified.

The force of the second proposition lies in the tendency to chicanery and political machination in proportion to the complexity of the business or utility under consideration. The government ought not to multiply offices and jobs unnecessarily. The fewer officeholders possible compatible with the proper conduct of the public business the better. The government is in a position to hire large sums of money at lower rates of interest than any other business concern. Hence it can operate extensive public affairs with a smaller interest account than private individuals or private corporations.

The telegraph system of the country fits more exactly to these considerations than any other, except the mail service. Every person is liable to use the telegraph. And he should be at liberty to reach every other person in the country with this agency. It is a utility of the most general application.

Again, in proportion to the capital invested, it is operated by a very small number of employees. It fits into the mail service perfectly, and is properly a part of that agency. The government could therefore operate it with comparatively small expense and that by adding a very small number of officers and clerks to the government pay roll. The investment would, of course, be large, but the returns would be handsome and would in time pay up the loan required to acquire the plant.

Government ownership of the telegraph is bound to come. It has come in England, Germany, France and in other countries and works successfully, and will come and will work successfully in this country.

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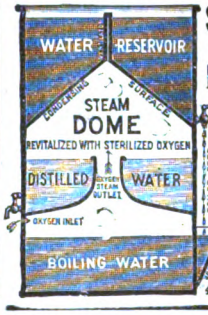
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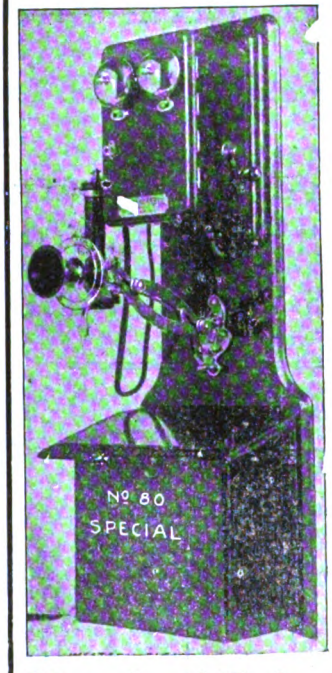
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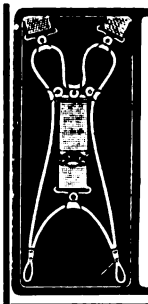
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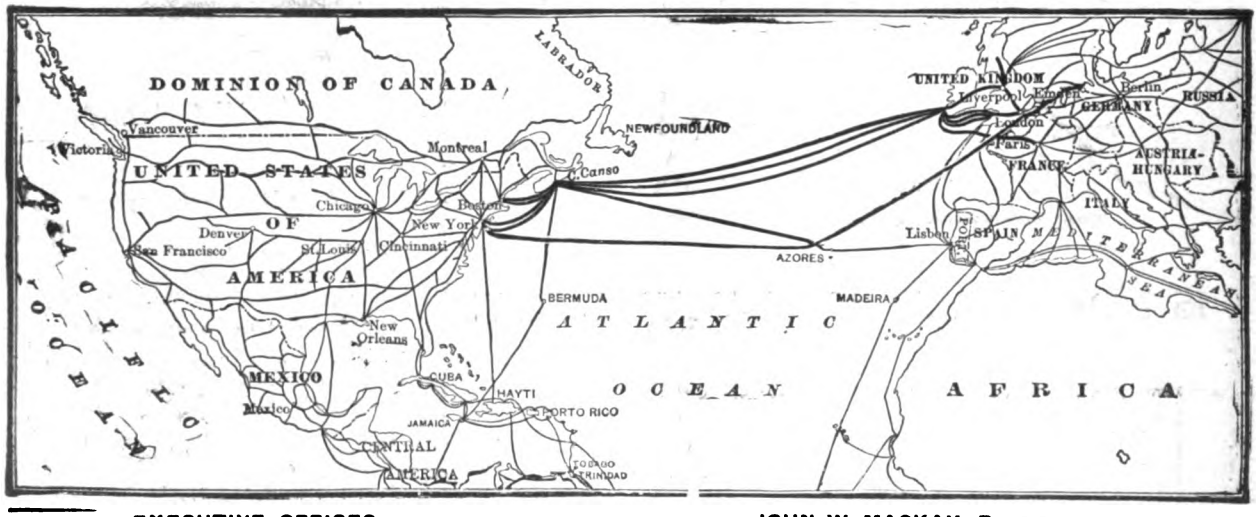
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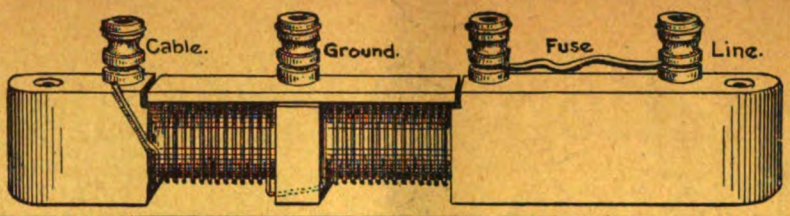
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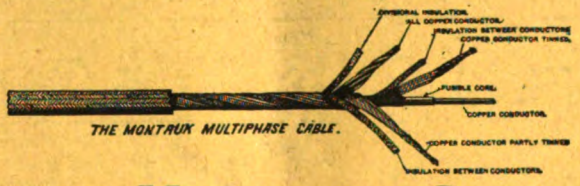
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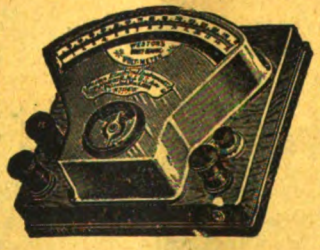
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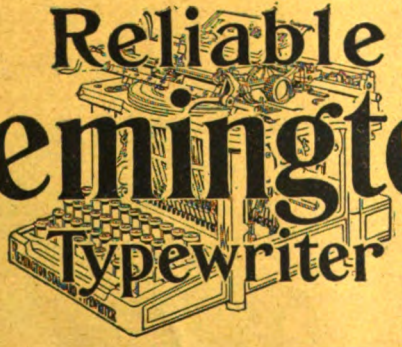
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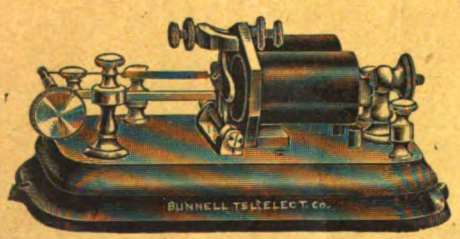
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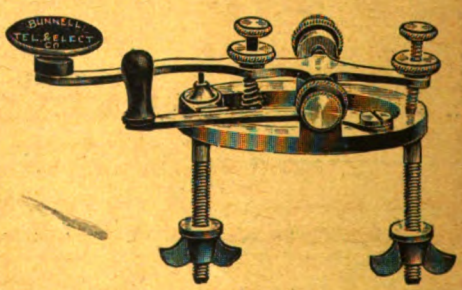


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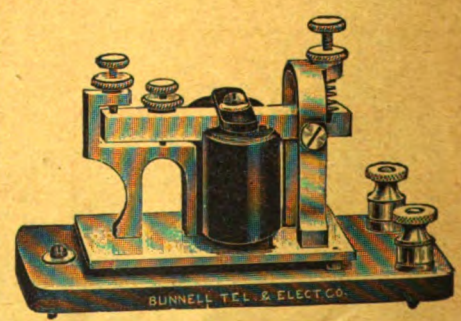


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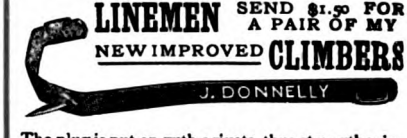
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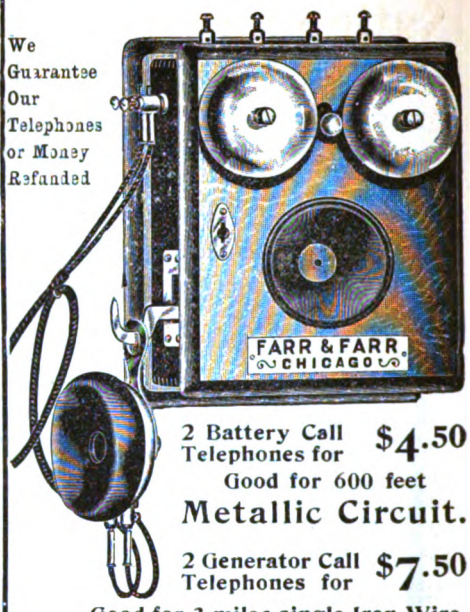
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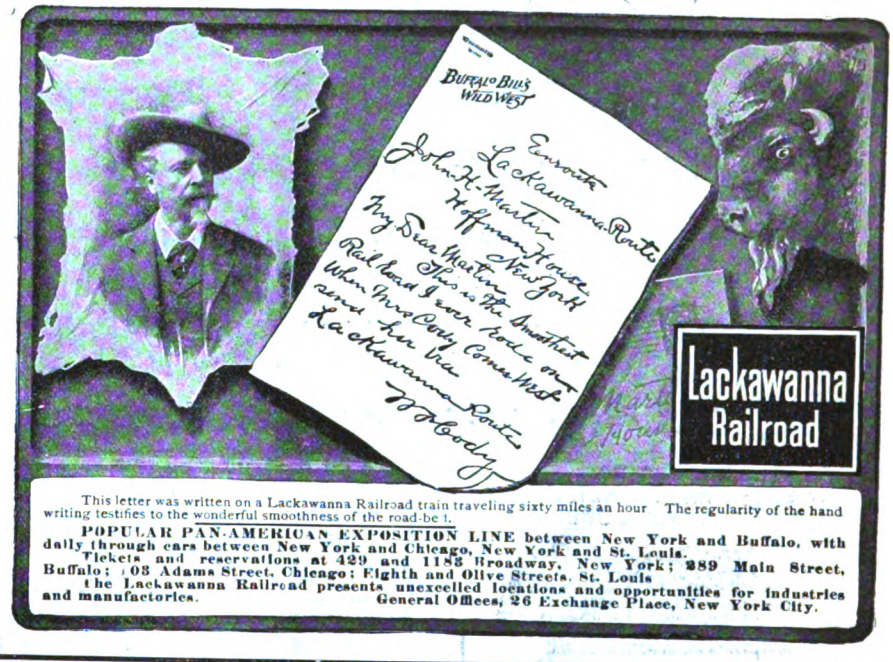
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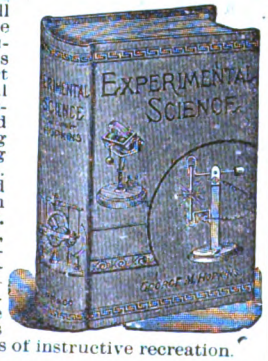
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No. 17. NEW YORK, SEPTEMBER 1, 1901. Vol. XXIV.

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SOME POINTS ON ELECTRICITY.

The Equipment of a Modern Telegraph Office—Current Distribution.

BY WILLIS H. JONES.

Quite frequently this journal is asked to describe the manner in which battery power is distributed to the various apparatus in a telegraph office and the arrangement of house wires for current distribution; also, how to go about ascertaining the required current capacity and voltage of the dynamo or dynamos to be installed, as well as the size and character of conductors employed.

To answer this question intelligently one would require to have full details of the particular office to be equipped, for an estimate suitable for one office might be utterly unfit for another. It is quite evident that a large telegraph office demanding from 50 to 250 milliamperes of current from each of several hundred, or perhaps a thousand, circuits would require a dynamo of greater current capacity than one possessing a lesser number, even though the voltage of the two machines be identical.

Again, on account of the varying heat capacity of different sizes of wires, the house conductors for the larger office must necessarily possess a greater cross-section than those which may, for the sake of economy, be used in wiring the smaller station.

Now, we know exactly how much current each instrument requires, and also the limit beyond which each gage of wire must not be crowded with current, so that the proposition of estimating the necessary capacity of a dynamo is merely a matter of multiplying the number of circuits to be fed by the value of the current in milliamperes required to actuate one instrument of the type employed in each circuit, and add to the product enough to allow for the drain due to wet weather and the future growth of the office. In very wet weather the amount of current drawn from a dynamo is nearly double that absorbed on dry days, hence the product obtained should be at least doubled. For future growth add to this sum what in your judgment may be required. Thus, for a relay circuit the multiplier could be .050, while for a 4 ohm sounder circuit it would be .250. The total value of the current absorbed by all the wires determines the size and construction of the machine to a great extent. If the quantity be very great it means that the armature of the dynamo required must be wound with large copper wire in order to safely carry it without overheating. This in turn means that the armature itself must be correspondingly large in size in order to hold the many convolutions of wire necessary to bring the voltage up to the required value. From this the reader will see that where both quantity and pressure of unusually great value are demanded the lineal dimensions of the machine must be great in all directions, such, in fact, as are found in the types embodied in the Sprague and Crocker-Wheeler machines now so frequently employed in the telegraph service.

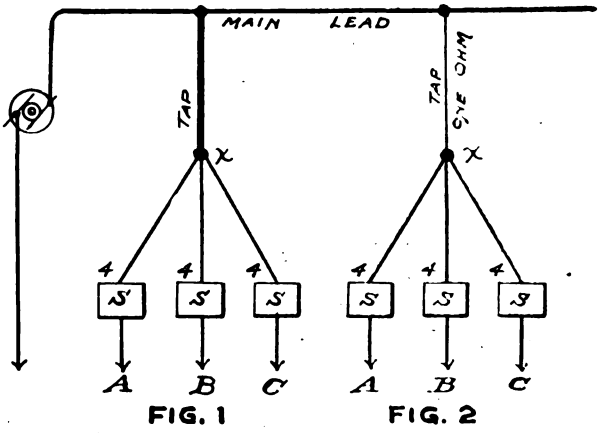


FIG. 1 FIG. 2

These facts are stated merely to show the importance of making a proper capacity estimate at the start. An inexperienced person might imagine that any machine would serve the purpose so long as the voltage was right, and be tempted to purchase one of the small patterns in order to economize financially. Should he make this mistake he

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would soon learn that on account of the fine wire used in winding the armature of such machines, in order to reduce the dimensions, his purchase would be utterly useless the moment he attempted to feed more than two or three circuits therefrom. Right here is a point which cannot be too strongly impressed upon the minds of all young engineers. In every electrical proposition the size of each vehicle of an electric current must be large enough to carry the maximum quantity of current which may ever be demanded at one time to the point of delivery without materially reducing the initial electromotive force of the dynamo producing it. This caution applies particularly to the selection of house wires leading from the dynamo to the switchboard and other circuits to be supplied. It is especially important where the apparatus is at any considerable distance from the machine. If such leads be too small the value of the current in the various circuits fed therefrom will fluctuate (due to the laws of joint resistance), with the result that the instruments will work with that unsteady, choppy effect so disagreeable to all operators. House wires should invariably be of insulated copper, and as large as can be afforded. Remember that the larger the conductor the less unnecessary work will the machine be called upon to perform before reaching the external circuits, and the steadier will be the supply of current delivered to the latter.

To make this point plain let us run a single wire from the dynamo, or from the main lead (which is the same thing), as shown in Fig. 2, and note the effect when we attempt to feed two instruments from the one tap. For the purpose of simplicity assume that the instruments in the three circuits shown were four ohm sounders requiring one-quarter of an ampere of current each, and that the effective electromotive force at the point where the tap was made is just one volt. Now, so long as the resistance of the tap wire is negligible, as in Fig. 1, the sounder will receive, according to Ohm's law, $\frac{1E}{4R} = \frac{1}{4}$ of an ampere of current—its proper value.

Should you have made the mistake of using a small steel or iron wire for the tap, it may have caused a resistance of say one ohm to be inserted between the main lead and *X*. In this case the total resistance of the circuit would be 5 ohms, which would give the sounder but one-fifth of an ampere of current. The slight reduction would not interfere materially with the working of the one instrument while circuits *B* and *C* are open; it would simply work a little weaker than before. But should you attempt to feed two or more sounders through this small conductor the effect would be as follows: With circuits *B* and *C* open (Fig. 2) sounder *A* would receive one-fifth of an ampere of current; with *A* and *B* closed and *C* open, *A* would receive but one-sixth of an ampere, because the total resistance of the circuit fed by 1 volt, being now reduced to 3 ohms, owing to the joint resistance of the two sounders *A* and *B;* that is to say, 2 *JR*+1 in tap=3, draws one-third of an ampere of current through the tap wire, which amount divides equally at *X* between the two sounder circuits *A* and *B*, giving each but one-sixth of an ampere.

With *A*, *B* and *C* closed there would be but two and one-third ohms in the circuit and something less than one-half of an ampere in the tap up to the point *X*, but as that amount must now divide equally between the three circuits, *A*, *B* and *C*, each instrument obviously receives less current than ever. As the same number of sounder circuits, while working, are seldom actually closed at the same instant, each instrument receives a current constantly varying in volume, with the result that the sound given out by the lever is uneven and "choppy."

Of course, in actual practice no one would think of arranging circuits in exactly the crow-foot manner shown in the accompanying diagrams, nor employ but one volt of electromotive force for four ohm sounders; nevertheless, theoretically the illustration shows the general outlines of the plan followed in the arrangement of many pony circuits in our modern telegraph offices to-day, the complete details of which will be given in succeeding instalments of this article.

(To be continued.)

Business Notice.

Mr. H. D. Rogers, of New York, an old-time telegrapher, will be remembered by many as the western agent at Cincinnati for the Gold and Stock Telegraph Co., and the Commercial News Department during the period from 1865 to 1875. At that time he was also largely engaged in the electrical business. Mr. Rogers is an inventor of considerable repute, and has taken out a number of patents, the principal ones of which are for printing telegraph instruments, dial telegraph instruments, underground cables, etc. He was also president of the Municipal and Counting House Telegraph Co., the first in the West to introduce private lines, and he has the distinction of being the first to introduce underground wires in the West, he having appeared before the city authorities of Cincinnati on several occasions in reference to the same.

In 1867, while representing the Commercial News Department of the Gold and Stock Telegraph Co., he invented a process for printing on manifold sheets so that they registered, and on which was written in the blank spaces the reports of the markets, as well as for Gold and Stocks. They became very popular and were adopted by the company, as well as by the Government for the Signal Service; in many departments of trade they are now in constant use for duplicating purposes.

He is treasurer of the Rogers Manifold and Carbon Paper Co. (incorporated), 75 Maiden lane, New York, manufacturing stationers, whose advertisement appears on another page. Their specialties are carbon papers for typewriter, pencil and stylus use; manifold books, typewriter ribbons, etc.

Practice patience—I can tell you that requires nearly as much practicing as music.

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Twenty-first Annual Reunion of the Old Time Telegraphers and The United States Military Telegraph Corps.

The Old Time Telegraphers' Association and The United States Military Telegraph Corps, long identified in mutuality of interests and bound together by ties of intimate companionship, have reached their majority. To fitly celebrate the twenty-one years of existence, they have prudently stolen away from home, stepping across the border at the cordial invitation of a Canadian president and vice-president, and there, beyond the ken of domestic restrictions, to render proper recognition in joyous abandon of so important an event as that of "coming of age." Of course no one would be so churlish as not to wish the "boys," under the circumstances, one of the best of times, even though they abandon their own country for the purpose. Yet so important a delegation and one bearing the insignia of the tele-



L. B. MCFARLANE, OF MONTREAL, QUE.
President of the Old Time Telegraphers' Association.

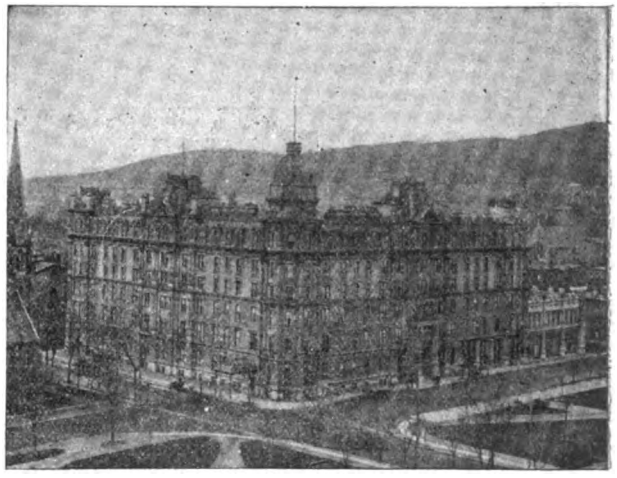
graph, which brings all the world into closer community, has it quite within its power to further emphasize and seek the perpetuation of the era of national brotherhood and other kindred good feelings between the two countries that speak the same tongue. It will be the duty of the delegates to see to it that this fraternal spirit is duly enjoined at the banquet which is announced for the mid-evening of the convention meet. There will be told on this occasion stories galore of thrilling Civil War incidents, and of marvelous old-time feats of telegraphing, compared with which modern accomplishments in that direction will rank as trivial, to all of which it is expected the Canadian hosts will listen with eager and respectful attention.

During the year past, a large number have been added to the ranks of the Old Time Telegraphers, and the roll of membership was never so large as it is to-day. The growth and vigor of this association appear to increase with advancing years, and its hold on the telegraph fraternity is deep and strong. A large measure of this prosperity is due to the energetic methods pursued by Mr. John Brant, the secretary of the association. He has



JOHN BRANT, OF NEW YORK.
Secretary-Treasurer of the Old Time Telegraphers' Association.

given to it much of his time, keeping in touch with members everywhere, imparting to them the enthusiasm which he feels for the society, aiding



WINDSOR HOTEL, MONTREAL, QUE.
Headquarters of the Old Time Telegraphers' Association and the United States Military Telegraph Corps.

in securing transportation to and from conventions, and otherwise rendering many acts of personal kindness calculated to promote their welfare.

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Two notable deaths have occurred within the ranks of the Old Timers, whose presence at the meeting at St. Paul and Minneapolis last year added so much to the pleasure of that occasion. Reference is made to Senator Cushman K. Davis and to James D. Reid, the former, who rose to the rank of one of the foremost statesmen of the country, and the latter affectionately known as the "Father of the Telegraph."

A matter of much interest to be brought before the Montreal meeting will be the question of the merger of "The Telegraphic Historical Society of North America" with the Old Time Telegraphers' Association, for which act official application has been made. The members of the Historical Society are unanimous in the request to join forces, and as the interests of the two associations are largely



THOMAS AHEARN, OF OTTAWA, ONT.

Member of the Executive Committee of the Old Time Telegraphers' Association.

identical, made up in part by a common membership, it is to be hoped that a consolidation may be effected. Such action would result in the acquisition by the larger society of a large number of valuable and interesting records, books, papers and telegraphic curios, a valuable asset every way considered.

The place of meeting of this convention will be at the Windsor Hotel, Montreal, one of the finest hostelries in Canada. The programme of business and entertainment covering the three days' stay will be as follows:

Wednesday, September 11: At 10 o'clock, A. M., a joint and informal social meeting of The Old Time Telegraphers' Association and The United States Military Telegraph Corps will be held in the ladies' parlor, Windsor Hotel, at which an address of welcome will be made by Mayor Prefontaine, M. P. At 10.30 the Old Timers will hold a business meeting at which the project of a "Telegraphers' Home," about which so much has been said during the past few years, will be brought up for discussion. At this meeting also, the proposition to merge The Telegraphic Historical Society of North America with The Old Time Telegraphers' Association will be considered. Following this meeting, a business meeting of The United States Military Telegraph Corps will be held at 11.30 in the same place. This brief business of the two asso-



JAMES KENT, OF MONTREAL, QUE.

Member of the Executive Committee of the Old Time Telegraphers' Association.

ciations disposed of, the remainder of the stay at Montreal will be given over exclusively by the visiting telegraphers to social recreation, the first feature of which after luncheon will be a drive through the city and up to the summit of Mount Royal.

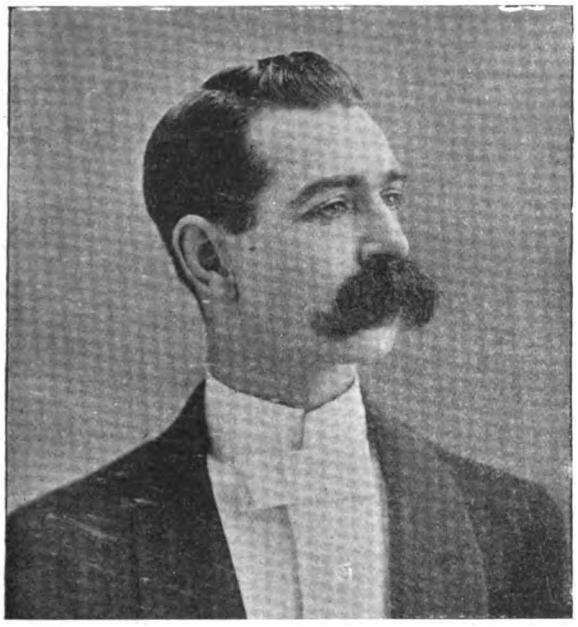
Thursday, September 12: At 10.30 A. M. a visit to the electrical buildings of Montreal has been arranged. At 2 P. M. the steamer "Duchess of York" will convey the telegraphers on an extended river excursion. This will be made via the Lachine Canal, and will include the shooting of the rapids and an inspection of the harbor of the City of Montreal. In the evening, at half past eight o'clock, a banquet will be held at the Windsor Hotel.

Friday, September 13: A trip by trolley cars will be made, when visitors will be taken to in-

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spect the great power plant of Lachine Rapids Hydraulic and Land Company. In the evening a theater party is announced for 8 o'clock.

Members who propose attending the conven-



W. J. CAMP, OF MONTREAL, QUE.

Member of the Executive Committee of the Old Time Telegraphers' Association.

tion are requested to communicate this fact early to Mr. Fred. H. Waycott, manager, Anglo-American Telegraph Company, Montreal, Chairman of



WM. B. POWELL, OF MONTREAL, QUE.

Member of the Executive Committee of the Old Time Telegraphers' Association.

the Hotel Committee, who, upon request will endeavor to secure the necessary room accommodations in advance. Tickets for the banquet, price $3.00 each, can also be had from Mr. Waycott. On arrival, members will be expected to first register their names with the Reception Committee, pay for their banquet tickets and receive their badges.

Arrangements have been made with the Richelieu and Ontario Navigation Company for the issue of excursion tickets at single fare to such members as desire to visit the City of Quebec.

The officers of the Old Time Telegraphers' Association are L. B. McFarlane, President, Montreal; J. E. Hutcheson, Vice-President, Ottawa; John Brant, Secretary-Treasurer New York. Executive Committee: H. C. Hope, St. Paul, Minn.; H. J. Pettengill, Boston, Mass.; J. J. Dickey, Omaha, Neb.; J. Compton, Nashville, Tenn.; Thos. Ahearn, Ottawa, Can.; James Kent, W. J. Camp, Wm. B. Powell, Fred'k H. Waycott, Montreal, Can.

The officers of The United States Military Telegraph Corps are: Col. Wm. B. Wilson, President, Holmesburg, Philadelphia, Pa.; Wm. L. Ives, Vice-President, New York; J. E. Pettit, Secretary and Treasurer, Chicago, Ill. Executive Committee: E. Rosewater, Chairman, Omaha, Neb.; A. H. Bliss, Chicago, Ill.; Col. A. B. Chandler, New York; W. R. Plum, Chicago, Ill.; George C. Maynard, Washington, D. C.; D. Wilmot Smith, Breckenridge, Minn.; R. B. Hoover, Springfield, Ohio; L. A. Somers, Cleveland, Ohio; J. D. Cruise, Kansas City, Mo.

A Complete List of the Living U. S. Military Telegraphers.

The following is a complete list of the living United States Military Telegraphers so far as known:

Anderson, Joseph.
Atwell, J. W.
Ash, Wm. M.
Armstrong, S. T.
Armstrong, E. L.
Boyle, E. C.
Baxter, Geo. W.
Brooks, J. N.
Brush, Sam T.
Bliss, A. H.
Barth, Martin.
Burch, C. B.
Burnett, Geo. A.
Brennaman, A. T.
Bowerman, H.
Bruner, P.
Bodell, W. J.
Bates, D. H.
Boyd, J. W.
Biggert, W. L.
Bender, R. W.
Barwick, Thos.
Benedict, C. H.
Buell, Madison.
Crittenden, J. N.
Cole, Geo.
Clowry, Col. R. C.
Chandler, Col. A. B.
Chandler, C. E.
Chasteau, Louis M.
Culbertson, C.
Clark, J. B.
Connor, Paul D.
Cochran, C. P.
Childs, A. F.
Cruise, J. D.
Doyle, P. C.
Davis, Sam'l.
Dewitt, Ira.
de Bree, N.
Dealy, W. J.
Dougherty, C.
Dougherty, A. D.
David, Capt. T. B. A.
Duncan, F. H.
Dixon, J. R.
Dennis, L. B.
Dwyer, Con.
Eckert, Gen. T. T.
Eckman, W. H.
Emerick, J. H.
Egan, Jno. J.
Elliot, R. H.
Eitemiller, Geo. M.
Evans, Frank H.
Flynn, J. D.
Furr, Robert.
Farnham, G. M.
Fuller, Col. W. G.
Fairchild, S. B.
Fitch, D. H.
Flagg, J. A.
Fish, E. G.
Fonda, T. H.
Ferris, D. V.
Geiger, J. M.
Glascott, W. H.
Golding, Geo. J.

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Greene, E. C.
Gross, Col. W. L.
Gordon, Matt.
Griswold, M. E.
Gilmore, Col. J. R.
Gentry, W. D.
Gough, R. S.
Gardiner, O. A. A.
Guthridge, J. F.
Gulick, C. W.
Homan, Chas. A.
Hoover, R. B.
Huyck, Maynard.
Hammond, C. D.
Hammond, C. W.
Henderson, Geo.
Hotchkiss, Z. P.
Hallam, Isaac W.
Hull, H. P.
Hull, A. K. V.
Hansen, Jos.
Hancock, A. G.
Hatton, O. C.
Ives, W. L.
Jaques, C. W.
Knittle, Jos.
Kerner, M. H.
Knapp, A. C.
Kanode, A. H.
Knapp, S. B.
Korty, L. H.
Laird, T. A.
Long, F. C.
Ludwig, F.
Ludwig, D. J.
Logue, W. S.
Lonergan, Jno.
Lewis, W. T.
Mason, J. Q.
Murray, P. J.
Martin, H. S.
Maynard, Geo. C.
Moreland, T. E.
Matlock, H. H.
Macklind, Mrs. L. E.
McMichael, I.
McKelvey, A. T.
McKenna, J. A.
McReynolds, C. W.
McCleverty, J. D.
McMurtry, B.
Morgan, J. B.
Montayne, C. D.
Martyn, D. E.
Meagher, J. R.
Moore, C. W.
Morrison, Thomas.
Mixer, Chas. H.
Nichols, J. H.
Nichols, A. M.
Naile, G. W.
Nohe, A. W.
Nunan, P. H.
Newton, E. C.
Nye, J. M.
Norris, J. B.
Orton, A. W.
O'Brien, Dr. J. E.
O'Brien, Richard.
Powers, Richard.
Parsons, Jas. K.
Parsons, J. W.
Plum, W. R.
Plum, H. W.
Pettit, J. E.
Palmer, C. H.
Perdue, L. Ford.
Phelps, Ransom.
Peel, E.
Robinson, Merritt F.
Robinson, B. L.
Robinson, S. L.
Robinson, J. H.
Rosewater, E.
Railton, G. W.
Ryan, Crosby J.
Rose, L. A.
Rawlins, T. E.
Somers, L. A.
Stumm, F. A.
Schnell, Jos., Jr.
Schnell, Thad.
Sholes, C. G.
Strubbe, W. G.
Showerman, I. C.
Safford, A. G.
Stillman, Geo.
Sheldon, Capt. L. F.
Sheldon, W. A.
Smith, D. Wilmot.
Sanburn, F. A. H.
Shuman, W. A.
Sprague, H. C.
Shepherd, O. M.
Snow, H. N.
Tinker, Chas. A.
Torrance, J. A.
Talbot, R. M.
Thomas, John.
Townsend, N. S.
Trowbridge, H. R.
Von Eye, E.
Vincent, H. C.
Volts, J. D.
Wilson, Col. Wm. B.
Wilson, Ellis J.
Whitford, E. P.
Woodward, B. F.
Woodward, W. R.
Woodring, W. H.
Williams, D. A.
Williams, J. S.
Whelpley, C. L.
Winder, A.
Waterhouse, T. Q.
Wintrup, J.
Wolff, C. C.
Weir, Col. L. C.
Webb, J. G.
White, W. N.
Warner, O. L.
Wood William.
Ward, Edward T.

From the false statements made in the ordinary telegraph college prospectus, it seems that no one can be induced to enter the telegraph business unless they are misled in the first place. Soft jobs at good pay are not in evidence anywhere else outside of the specious prospectus.—Railroad Telegrapher.

Many people will never admit there are any classes until they find themselves hustling for a living in the working class.

Forty-Niners of the Telegraph.

The following list embraces the names of the oldest living members of the telegraph profession, so far as known those who entered the service during the forties.

Name.	When entered the service.	Where entered the service.	If telegraphing now.	Present address.
Adams, Frank	1849	Akron, O	No	Mt. Dora, Fla.
Allen, George E.	1847	Utica, N. Y.	No	Utica, N. Y.
Allen, Wm. C.	1849	Akron, O	No	Akron, O.
Amsden, Ira R.	1846	Philadelphia, Pa.	No	Buffalo, N. Y.
Balch, G. W.	1848	Detroit	No	Detroit.
Barr, M. W.	1847	Wheeling	No	Wash'gton, D. C.
Barth, Martin	1848	Pittsburg, Pa.	No	Westmoreland, Tenn.
Benedict, G. G.	1849	New York	No	Burlington, Va.
Berry, Stephen	1846	Boston	No	Portland, Me.
Bethune, N. W.	1847	Montreal	No	Ottawa, Ont.
Booth, N. M.	1849	Louisville	No	Evansville, Ind.
Brenner, J. A.	1849	Washington	Yes	Augusta, Ga.
Brigham, Geo. F.	1848	Fredonia, N. Y.	Yes	Sharon, Wis.
Brigham, Henry H.	1849	Warren, Pa.	Yes	Sharon, Wis.
Bright, Louis A.	1849	Pottsville, Pa.	Yes	Erie, Pa.
Brown, John S.	1847	Carmel, N. Y.	No	Chicago, Ill.
Brownson, W. G.	1849	Po'keepsie, N. Y.	No	Toledo, O.
Buell, Madison	1847	Buffalo, N. Y.	Yes	Buffalo, N. Y.
Carnegie, Andrew	1848	Pittsburg	No	New York.
Chastean, Lou's M.	1845	Baltimore, Md.	No	Sedgeley, Pa.
Clark, Wm. H.	1849	Frankfort, Ky	No	Washington.
Cleveland, Uriah	1847	Toledo, O.	No	Toledo, O.
Clum, Wm. B.	1846	New York	Yes	New York.
Cobb, Emory	1848	Fredonia, N. Y.	No	Kankakee, Ill.
Compton, J.	1848	Wheeling, W. Va.	Yes	Nashville, Tenn.
Cornell, A. B.	1846	Ithaca, N. Y.	No	New York.
Cutler, Chas. S.	1849	Buffalo, N. Y.	No	Buffalo, N. Y.
David, T. B. A.	1849	Pittsburg Pa	No	Pittsburg.
Daugherty, A. D.	1848	Coldwater, Mich.	No	Kalamo, Mich.
Davis, A. G.	1849	Po'keepsie, N. Y.	No	Baltimore, Md.
Dewey, Benj. H.	1849	Maumee City, O.	No	New York.
Dodge, L. C.	1847	Burlington, Vt.	No	San Rafael, Cal.
Dunham, J.	1847	Po'keepsie, N. Y.	No	Valley Springs, S. D.
Dwight, H. P.	1847	Montreal	Yes	Toronto, Ont.
Easson, R. F.	1849	Toronto	Yes	Toronto, Ont.
Eckert, Thos. T., Gen.	1848	St. Clairsville, O.	Yes	New York
Fairchild, Sidney B.	1847	New Haven, Conn.	Yes	St. Louis, Mo.
Farnsworth, Geo.	1849	Boston	No	Detroit, Mich.
Frey, Geo. H., Sr.	1849	Springfield, O.	No	Springfield, O.
Fuller, Wm. G.	1848	Lowell, Mass	No	Gallipolis, O.
Gentry, W. D., Dr.	1848	Hopkinsville, Ky.	No	Chicago, Ill.
Guthridge, J. F.	1849	Attica, Ind.	Yes	New York.
Haskins, Chas. H.	1846	Buffalo, N. Y.	No	New York.
Haskins, Clark C.	1346	Buffalo, N. Y.	No	Chicago, Ills.
Haviland, Jas. D.	1847	Detroit	No	Ludlow, Mass.
Hepburn, H. C.	1845	Philadelphia	No	New York.
Homans, Benj.	1848	Baltimore	No	New York.
Hoyt, Samuel	1848	Milan, O	No	Clinton, Iowa.
Hucker, Nathl.	1847	Buffalo, N. Y.	Yes	Buffalo, N. Y.
Hunt, Thomas	1849	Morrow, O	Yes	Kennedy, O.
Kauffman, S. H.	1848	Wooster, O.	No	Washington, D. C.
Kissock, David	1847	St Catharines, Ont.	No	Lancaster, N. Y.
Larcombe, J. H.	1847	Philadelphia, Pa.	No	Washington, D. C.
Louis, L. A.	1848	Louisville, Ky	Yes	Centralia, Ill.
Matthews, Chas. P.	1849	Columbus, O.	Yes	Detroit.
Merrihew, James	1849	Wilmington, Del.	Yes	New York.
Melbourne, W. A.	1848	Bardstown, Ky.	Yes	Swanwick, Ill
McCargo, David	1849	Pittsburg	No	Pittsburg, Pa.
Mingle, James L.	1845	Philadelph'a	Yes	New York.
Newell, Robert	1848	Buffalo, N. Y.	No	Buffalo, N. Y.
Porter, E. P.	1846	Geneva, N. Y.	Yes	New York.
Pitcairn, Robt.	1849	Pittsburg	No	Pittsburg.
Reed, Henry A.	1849	Carmel, N. Y.	No	New York.
Ryan, Reuben H.	1848	Milan, O.	Yes	Tama, Ill.
Scott, M. A.	1848	Toledo, O.	No	Toledo, O.
Stebbins, Chas. M.	1848	Milan, O.	No	Hartsdale, N. Y.
Stone, John D.	1846	Rochester, N. Y.	No	Syracuse, N. Y.
Sutherland, John A.	1849	Buffalo	No	Newark, N. J.
Swan, G.	1845	Utica, N. Y.	Yes	New York.
Talcott, A. B.	1849	Boston	No	Washington, D. C.
Titcomb, H. B.	1848	Memphis, Tenn.	No	Columbus, Tenn.
Tomlinson, E. M.	1846	Hartford, Conn.	No	New York.
Townsend, John A.	1849	Akron, O.	Yes	Dunkirk, N. Y.
Tree, J. B.	1847	Washington	Yes	Richmond.
Tubbs, F. H.	1848	Milan, O.	Yes	Chicago, Ill.
Tyler, Artemus E.	1848	Erie, Pa.	No	Etna, N. Y.
Van Duzer, A. M.	1849	Fredonia, N. Y.	No	Cleveland, O.
Ward, Henry H.	1848	Springfield, Mass.	Yes	New York.
Wellen, Alfred	1847	Marshall, Mich.	No	Milwaukee.
Williams, George T.	1849	Sinclairville, N. Y.	No	Cleveland, O.
Wood, Chas. F.	1848	Washington	Yes	Boston
Wood, Orrin S.	1844	Washington	No	Rosebank, N. Y.
Wood, Otis E.	1846	Buffalo	No	Itha a, N. Y.
Worl, Jas. N.	1848	Philapelphia	No	New York.
Worl, W. S	1849	Philadelphia	No	New York.
Wright, E. P.	1849	Geneva, N. Y.	No	Cleveland, O.

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Sixth Annual Meeting of the International Association of Municipal Electricians.

It has been announced that the International Association of Municipal Electricians, which is to meet at Niagara Falls, N. Y., on Monday, Tuesday and Wednesday, September 2, 3 and 4, would hold its sessions in the Natural Food Company's Convention Hall at that place, but owing to the unfinished condition of that building the meetings will be held instead in the Banquet Hall of the International Hotel, at which house headquarters will be established. At this point Mr. Frank P. Foster, of Corning, N. Y., the secretary of the Association, will be in attendance until noon on the morning of Monday, the 2d inst., and all members and guests are requested on arrival to first report to him, register their names and secure badges.

As the years go by this Association, particularly since it took on its broader municipal scope and



MORRIS W. MEAD, OF PITTSBURG, PA.

President of the International Association of Municipal Electricians.

thus measurably extended its sphere of operations, has shown a sturdy growth and development. This is due in the first place to the practical necessities that brought such an organization into existence; and secondly, because it is actively supported by intelligence and enthusiasm, thoroughness of organization and progressiveness in its methods.

Much energy has been shown this year on the part of the Executive Committee to reach not only the individual members themselves and urge them to attend this convention, but all electricians as well who may be identified with, or interested in, the objects of the meeting, have also been cordially invited to be present. As a result the prospects now are for a very full attendance, delegates from every part of the United States, from Canada and from Mexico being expected.

In addition to the great natural attraction afforded by the Falls of Niagara, the proximity of the convention city of that name to Buffalo will doubtless also act as a great drawing card for many, as a visit to the Pan-American Exposition, which naturally every one desires to see, can readily be taken in conjunction with attendance at the convention.

Another attractive pro-convention feature, which promises much enjoyment to those who participate, is the proposed excursion to Montreal, there to join with the Old Time Telegraphers' Association and The United States Military Telegraph Corps, who meet in that city in joint convention on Wednesday, Thursday and Friday of the following week, September 11, 12 and 13.

Delegates to the convention will be pleased to learn that the Western Union and Postal Telegraph-Cable companies, as well as the local telephone companies, have courteousy tendered the free use of their lines, including long-distance telephoning, to members during the sessions of the Association.

The official programme of the convention is as follows:

Monday, September 2.—At 1.30 P. M. the proceedings will be opened by prayer. This will be followed by an address of welcome by Mayor M. B. Butler, of Niagara Falls, to which Morris W. Mead, of Pittsburg, president of the Association, will respond, and who will also deliver an address. Then will come the roll call, payment of dues and the report of the Executive Committee. After this a paper will be read on the "Need and Value of a Set of Rules for Outside Construction," by P. H. Trout, Jr., city electrician of Lynchburg, Va. This will be discussed by the members, and then will come adjournment.

At 3 o'clock carriages will be provided to convey the ladies of the convention from the International Hotel through the park and to visit the Natural Food Conservatory, as well as other points of interest. In the evening there will be a ride down the Gorge Electric Road to the Whirlpool Rapids and return. An electric searchlight will be attached to the rear car, lighting up the entire scene through which it passes. As this has been arranged especially for the benefit of the Association and its friends, it should not be missed, as the scenic effects along the river and in the gorge are grand.

Tuesday, September 3.—At 9.30 A. M. the morning session of the second day will begin with the roll call. Following will come the appointment of the Nominating and other committees, and the reports of the various special committees. The reading of the papers, "Municipal Control vs. Municipal Ownership," by E. F. Schurig, city electrician of Omaha, Neb., and "Inadvisability of Placing High and Low Potential Wires Through the Same Series of Conduits, or Through the Same Manholes," by William Brophy, of Boston, Mass., will be followed by their discussion, when an adjournment for lunch will be taken.

At 2.30 P. M., following the roll call, two papers will be read, one "The Protection of Fire and Police Telegraph Wires from High Tension Currents and Lightning," by W. M. Petty, superintendent of

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fire telegraph, Rutherford, N. J.; the other "Improved Storage Battery for Municipal Purposes," by J. W. Aydon, superintendent of fire and police telegraph, Wilmington, Del. A discussion on these papers will then follow, after which there will be special papers and remarks and then adjournment for the day.

At the close of the afternoon session the entire delegation will be taken on the "Maid of the Mist" and an accompanying boat up to the falls and down the river, affording all an opportunity to view the falls from the river, as well as a most enjoyable boat ride. In the evening a dance will be enjoyed at the International Hall.

Wednesday, September 3, the transactions of the convention will be dispatched at a single session, convening at 9.30 A. M. The order of business will be as follows: Roll call; report of secretary; report of treasurer; report of Nominating Committee; unfinished business; general business; election of officers; selection of place for next meeting; adjournment.

On Wednesday afternoon members of the convention are invited to visit the various power houses and inspect the greatest electrical generating plants in the world, the root from which springs the blossoms of light which so brilliantly illuminate the Pan-American Exposition.

The officers of the International Association of Municipal Electricians are as follows: Morris W. Mead, president, Pittsburg, Pa.; J. F. Zeluff, first vice-president, Paterson, N. J.; Burt McAllister, second vice-president, Bradford, Pa.; R. E. Moran, third vice-president, Memphis, Tenn.; Frank P. Foster, secretary, Corning, N. Y.; Adam Bosch, treasurer, Newark, N. J. Executive Committee—M. J. Donohue, chairman, Niagara Falls, N. Y.; William Brophy, Boston, Mass.; J. W. Aydon, Wilmington, Del.; Frank C. Mason, Brooklyn, N. Y.; Frank G. Boyd, Baltimore, Md.; William Y. Ellett, Elmira, N. Y.; G. F. MacDonald, Ottawa, Ont.; M. G. Canfield, Grand Rapids, Mich.; F. L. Michael, Peoria, Ill.

Old French Clock Used for Signal Telegraph.

One of the most curious clocks in the world represents a square tower ornamented with a dial, and it is surmounted by an aerial telegraph. At the base is a fountain, and while this flows the arms of the telegraph are also in motion, giving regular signals. This primitive method of telegraphing was definitely adopted by the national convention in Paris, on July 25, 1793. During the wars of the French republic and empire it rendered great service, and did not fall into disuse until the close of the Crimean war.

The mechanism of the clock moves the telegraph and the fountain. It is placed in the lower part of the tower, and consists of a toothed barrel, four wheels and a fly wheel. It can run for twelve hours without being wound, and a small bolt suffices to stop it and set it in motion. The large arm of the telegraph, known as the regulator, turns now in one direction, now in another, and so forms various signals. The small wings, or indicators, are moved by wires which are connected with pulleys. Only four different figures can be produced by the mechanism, but each of these can be so modified that it becomes quite easy to make no less than 196 telegraphic signals.

This old clock is still in working order, and several old persons in France say they remember seeing telegraph instruments of this kind in their youth, and that they worked well, except when there was a mist or a fog, for then their signals were invisible.

Mistakes in Telegraph Messages.

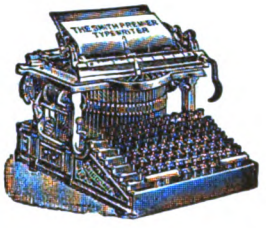
The latest volume of the English Ruling Cases (24) contains the leading case of Great Britain on the subject of the liability of telegraph companies for mistakes in messages. There the rule is that no action will lie by the receiver of a telegraphic message against the telegraph company for a mistake in the message delivered. In the United States the English rule is not adopted, and, it is held, almost without exception, that a telegraph company is liable to the person to whom a message is sent for negligence in the transmission or delivery of the message. The following are two interesting cases decided in New York: In the suit of Leonard vs. the New York, etc., Tel. Co., an operator of the defendant wrote "casks" for "sacks." The message called for 5,000 sacks immediately, and being written casks, the receivers shipped coarse salt instead of fine salt, as they would have done if the word had been sacks. The defendant was held to be liable. In an action brought by William C. Will and another against a telegraph company to recover damages for the failure of the defendant to transmit a telegraphic message, it appeared that one of the plaintiffs addressed to his firm in Buffalo a dispatch relative to important business, and demanded an immediate reply. The manager of the defendant sent the dispatch by a messenger to the firm, and told the messenger to wait for an answer. The messenger received an answer, which he put in his pocket and returned to the telegraph office. The answer remained in his pocket until accidentally discovered the next day. The message blank of the company contained a condition to the effect that whenever a message was sent to its office by one of its messengers the messenger was to be deemed the agent of the sender. The Fourth Appellate Division held that the company was liable for the default or omission of the messenger, and that the rule or condition interposed as a defense was not reasonable in its character, nor in accord with good, sound public policy. Even if the condition were given the effect claimed for it, the Court said, the company was still liable, for the reason that, when the manager of the company directed the boy to obtain an answer to the message, the boy became the agent of the company, and the fact that he asked, waited for, and received the plaintiff's message constituted a waiver of the regulation by the company.

Heard on the Way Wire—Can February March? No, but April May.

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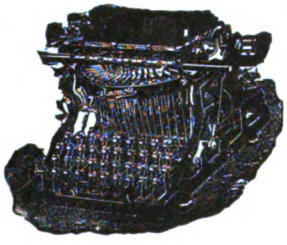
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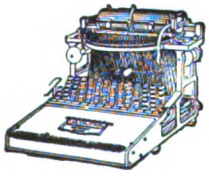


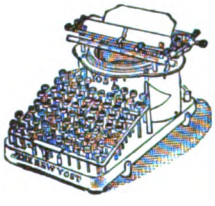
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NEW YORK, September 1, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

The Conventions.

This is the convention month, and those meetings occurring therein, of which this journal is the official exponent, and whose proceedings are always reported in full in its columns, are referred to at length elsewhere in this issue.

The first of these associations to hold its convention is that of the International Association of Municipal Electricians, now developed into a strong, vigorous and highly representative body, which meets at Niagara Falls in this State, this week; and the second, the joint affair of The Old Time Telegraphers' and The United States Military Telegraph Corps, which will assemble at Montreal, Que., next week.

The former association meets for purposes of business mainly, and bestows much time and thought in an interchange of ideas, as embodied in a series of papers, followed by discussion, dealing directly with practical questions affecting the welfare of the municipality as reflected in its police and fire alarm systems, and other closely allied interests; the two latter associations gather for social reasons, and afford to their members an opportunity once a year to join in fraternal fellowship, and is an event eagerly looked forward to and highly prized by all.

Both of these two great gatherings, each typical in its way, one so closely following the other, will be replete with interest to all who may attend, and TELEGRAPH AGE extends its greetings and congratulations to members upon occasions so auspicious.

A full account of the proceedings of the conventions will be published in the September 16 issues of this journal.

Inefficiency of the German Telegraph Service.

One of the latest telegraph errors in Germany, where the senders and receivers have no redress on account of the wires being in the hands of the government, has struck the newspapers so forcibly that an item explaining the mistake has been transmitted all over the world. At Frankfort, Germany, on August 24, fifteen delegates to the Tailors' Congress, at Osnabruck, planned an excursion to a neighboring resort, and telegraphed to the hotel to prepare a dinner for fifteen. When they arrived they were astounded to find covers for 135. The landlord produced a telegram reading that number.

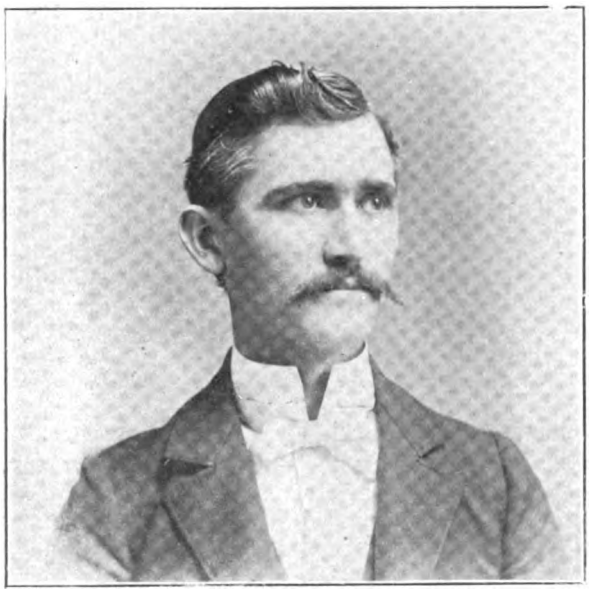
The original message read plainly fifteen; hence the error was indisputably the operator's. The hotel is suing for damages, and the government is disclaiming responsibility. This is not an isolated instance of the inefficiency of the German telegraph service, which is causing numerous complaints.

LEGAL.—In an action against a telegraph company to recover damages for the failure to promptly deliver money transmitted through such company to the plaintiff, the fact that plaintiff was evicted from her house because of her failure to receive such money, and the injury to her reputation generally because of such eviction, are consequences too remote to be considered as elements of damages. Mental distress, unaccompanied by physical injury, is not a proper element of damages recoverable from a telegraph company for a failure to promptly deliver money sent through its agency to plaintiff. Stansell vs. Western Union Tel. Co., U. S. C. C., S. D. (Cal.), 197 Fed. Rep. 668.

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Oliver Thomas Moore.

The subject of this sketch, who is manager of the Western Union Telegraph Company at Eufala, Ala., was born in Pittsboro, N. C., September 23, 1862. His parents moved to Apex, N. C., where he received his education, and where, in 1879, he entered the telegraph service as a student, learning telegraphy. In October, 1880, he accepted a position as operator with the Richmond & Danville Railroad Company (now the Southern) and continued in their service until January, 1883. He then resigned to accept a position as operator in the Western Union office at Wilmington, N. C. In January, 1884, he was moved to Charlotte, N. C., working for the same company until July, 1885, when he was transferred to Augusta, Ga. There he remained until April, 1887, when, on account of his efficiency and executive ability, he was appointed to his present position. He has filled this place ever since with much credit to himself and to the company whose interest he has served so long and so faithfully. Mr. Moore was married January 20, 1887, to Miss Della E. Aiken, of Durham, N. C. He has two children.



OLIVER T. MOORE.

Loan Associations Consolidated.

The practical union of the Serial Building Loan and Savings Institution and the Electric Building Loan and Savings Association, of 195 Broadway, New York, into one working body with a total capital of over $700,000 is an event for congratulation on the part of every member. It is needless to say that the affairs of both corporations are in first class condition as the statements recently published speak for themselves.

It is well, however, to observe that the same careful, conservative management which has characterized both of these associations in the past will no doubt prevail under their united management in the future; and as the affairs of both institutions will be conducted with one object in view, the interests of the members and the future welfare of both corporations will be identical.

TABLE OF TOLLS ON DAY OR NIGHT MESSAGES OF FROM 10 TO 50 WORDS.

Number of Words.	Rate 22-1	Rate 25-1	Rate 25-2	Rate 30-2	Rate 35-2	Rate 40-3	Rate 50-3	Rate 60-4	Rate 75-5	Rate 100-7
10	20	25	25	30	35	40	50	60	75	100
11	21	26	27	32	37	43	53	64	80	107
12	22	27	29	34	39	46	56	68	85	114
13	23	28	31	36	41	49	59	72	90	121
14	24	29	33	38	43	52	62	76	95	128
15	25	30	35	40	45	55	65	80	100	135
16	26	31	37	42	47	58	68	84	105	142
17	27	32	39	44	49	61	71	88	110	149
18	28	33	41	46	51	64	74	92	115	156
19	29	34	43	48	53	67	77	96	120	163
20	30	35	45	50	55	70	80	100	125	170
21	31	36	47	52	57	73	83	104	130	177
22	32	37	49	54	59	76	86	108	135	184
23	33	38	51	56	61	79	89	112	140	191
24	34	39	53	58	63	82	92	116	145	198
25	35	40	55	60	65	85	95	120	150	205
26	36	41	57	62	67	88	98	124	155	212
27	37	42	59	64	69	91	101	128	160	219
28	38	43	61	66	71	94	104	132	165	226
29	39	44	63	68	73	97	107	136	170	233
30	40	45	65	70	75	100	110	140	175	240
31	41	46	67	72	77	103	113	144	180	247
32	42	47	69	74	79	106	116	148	185	254
33	43	48	71	76	81	109	119	152	190	261
34	44	49	73	78	83	112	122	156	195	268
35	45	50	75	80	85	115	125	160	200	275
36	46	51	77	82	87	118	128	164	205	282
37	47	52	79	84	89	121	131	168	210	289
38	48	53	81	86	91	124	134	172	215	296
39	49	54	83	88	93	127	137	176	220	303
40	50	55	85	90	95	130	140	180	225	310
41	51	56	87	92	97	133	143	184	230	317
42	52	57	89	94	99	136	146	188	235	324
43	53	58	91	96	101	139	149	192	240	331
44	54	59	93	98	103	142	152	196	245	338
45	55	60	95	100	105	145	155	200	250	345
46	56	61	97	102	107	148	158	204	255	352
47	57	62	99	104	109	151	161	208	260	359
48	58	63	101	106	111	154	164	212	265	366
49	59	64	103	108	113	157	167	216	270	373
50	60	65	105	110	115	160	170	220	275	380

A kind word and a pleasant smile for our fellow-workers does much to lighten the cares of life, but what the workers want most, and should have, is good wages and shorter hours.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.

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A Change on the Road.

BY WILL R. JOYES.

There was something peculiar, or rather, out of the ordinary, about him. I noticed it at first the day Mr. Cleves, the agent, brought him up to he office and introduced him as "Mr. Johnson, the man who will take Mr. Hays' place."

I gave him a hasty glance as I arose from the table —a smooth shaved, well dressed, little man, of about 45. Something about him attracted my attention, but I was very busy and had little time to speculate.

I was chief operator in a relay office of a big western railroad. There were usually three of us, but for three days the place the new man was to fill had been vacant, and "Cripps" and myself had been doing the work—"Cripps" was a little cripple fellow —of course, the title was a nickname—given him by the trainmen, with whom he was a general favorite. He was a good operator, very accurate, his work was satisfactory, and he was a splendid man to have in a case like the present, as he understood the work thoroughly.

We had only been doing the most important work, as it was a busy season, but even that had been too much for us, and we both felt relieved to know that we would have help.

I saw "Cripps" watching the new man with sly glances, for a while—I'll admit I did, too, as for that. But he settled down to work at once, and although he did not put on any fancy flourishes, he did good, solid work, the kind that counts; and at 7 o'clock, when the relief force came on duty, we had the business in much better shape than for several days.

"Cripps" and the new man formed a fast friendship from the first. They were together every night after we were off duty. Another thing, which I remembered afterward, they returned to the office every night, and instead of sitting around, telling jokes and exchanging experiences, they were always rummaging through the old messages and books in the office.

Matters ran along smoothly in our department for about a week; by that time we had all the wire business moving nicely.

But if the wire work was progressing nicely it was certainly just the opposite with the rolling stock. Every day there was a wreck of some kind. It kept the wrecker rushing back and forth, from one end of the division to the other, with sometimes two or three calls at a time. A peculiar circumstance connected with these wrecks was that nobody was found to be at fault, or if any person was in fault, just who it was could not be ascertained; and out of a total of some fifty or more wrecks which had happened during the summer, some half a dozen brakemen and two or three section foremen were the only ones found at fault, and discharged.

Several times, too, Mr. Hall, the trainmaster, had believed he had found some conductors at fault, and even went so far as to discharge them; but in each instance Mr. Harvish, the superintendent, had reinstated them at once. This had been repeated several times, until finally Mr. Hall had discharged a conductor named Benson, a big, strapping, red-faced fellow, who, it seemed, the superintendent had a great regard for. They were often together when off duty or when out for pleasure or recreation. What Mr. Harvish should find attractive in the company of such a coarse, overbearing man was rather a mystery to all of us—but, come to think of it, Mr. Harvish's appearance and manner were not a very great improvement over Benson's. He was a low, heavy man, with a thick neck and repulsive features, and was never pleasant except when in company with some of the superior officers of the line.

Mr. Hall had discharged Benson about a month before, which act had brought a storm about his ears from the superintendent, who had reinstated him. It was the last man he had tried to discharge, and his position had been made almost unbearable ever since.

Those who were acquainted with him and who understood the situation knew that he would not endure, for any length of time, the treatment which had been accorded him since then. They knew the superintendent was "after his scalp," to use the trainmen's expression, and that Mr. Harvish would neglect no opportunity to make his position as unpleasant as possible. The employees unanimously sympathized with Mr. Hall. He was a capable railroad man, and had won their good will by acts of kindness. He had not neglected his work in any way, and, like the other employees of the division, I did not think he would long submit to the treatment accorded him by the superintendent. The climax came sooner than I expected, however.

No. 73 was called to leave at 5 o'clock one afternoon, and Benson was booked as conductor. At 4 o'clock No. 6 came in from the south and Mr. Hall got off. In a short time Benson came into the office. The minute he stepped into the room it was plain to see he was intoxicated. His face was flushed and the fumes of liquor were strong upon his breath; he did not notice Mr. Hall, but stepped over to "Cripps'" desk, and, throwing a message down upon it, he shouted with an oath:

"Send that, and be pretty quick about it!" Then, turning around, he kicked a chair over, and banging his fist down on Johnson's table, said: "Tell that d—d dispatcher I don't want any layouts on this run, and if I get any I'll settle with him when I get in."

He was going ahead out of the office when Mr. Hall stepped over and tapped him on the shoulder.

"I will not need you to take No. 73 out to-night, Benson."

He spoke in a low, clear tone, with a ring of decision in it, which meant business.

"You can report to my office to-morrow," he continued, as Benson stood eyeing him with amazement, and without replying. Benson's big neck swelled to twice its ordinary size, his face flushed to a deep red, and finally he found his voice with an oath.

"I have an order from the superintendent to take No. 73 out to-night, and I'll take her, as certain as she goes."

"Not if No. 73 goes while I am trainmaster," came the low, firm response.

Mr. Hall turned to the caller and gave the necessary instructions for calling another conductor, while

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Benson staggered away towards a saloon across the street, with an ugly look upon his coarse face. In a few minutes No. 7 came in from the north, and Mr. Harvish got off. Benson saw him, and in a few minutes they came into the office together.

"What is this I hear, Caller, about Mr. Benson not taking his run out this afternoon?" the superintendent asked, as he stepped over to the register desk.

"That is my order, Mr. Harvish," Mr. Hall said, as he raised from a desk across the room, where he was writing, and came forward.

"Well, those kind of orders will not be recognized, and another thing, I am getting tired of your meddling with the train crews and I do not intend to put up with it much longer."

The superintendent's face wore a dark scowl as he spoke these words, and, turning, he roughly addressed the caller:

"Change Benson back to No. 73."

Mr. Hall's face had flushed crimson when the superintendent first addressed him. He had not answered a word. But by the time Mr. Harvish had given the order to the caller he had regained control of himself.

"Mr. Harvish," he said, stepping forward, "I gave that order, and if I am trainmaster no drunken man shall go out as conductor on No. 73 to-night."

The words, and the clear, low tones of Mr. Hall's voice appeared to stagger the superintendent for a second, but the wild roar of Benson, who was trying to push by him to lay hands on Mr. Hall, brought him back to his position suddenly. Mr. Harvish had the reputation of being a dangerous man when aroused; he grasped Benson by the collar and slowly walked him out the door, then turned and came directly back to Mr. Hall. He had regained control of himself, and the words he addressed to him were meant to be sarcastic.

"For fear that a drunken man should take No. 73 out to-night, and that your word of honor should be broken, you can consider your services as trainmaster at an end."

He said this with an ugly sneer upon his face, and turning short about, walked out. Passing the caller, he asked in a rough voice:

"I suppose you have made the change for No. 73?"

Mr. Hall had listened to the superintendent with a white face, but had not ventured a word in reply, and as soon as he was gone returned to the desk where he had been writing when Mr. Harvish came in. There were some eight or ten employees about the room, and during the events which have just been related all of us were more or less excited—all except Johnson, the new operator. Although he had watched every move and heard every word spoken he appeared to note everything in that cool business way which characterized all his work.

Mr. Hall left that night for the general manager's office. A message came, calling Johnson also, and a man was sent to take his place. I did not get back to the office that night, but the next morning learned that No. 73 had wrecked about 40 miles south and a brakeman had been killed. A few days after that and just before the end of the month we received circulars over the road, saying that on the first of the incoming month the management would change, and that Mr. Hayward, a prominent official from an eastern railroad system, would take charge as vice-president and general manager, and that the first thing he would go over the system and get acquainted with the officers of each division.

So, in a few days, I received a message from Mr. Harvish to bring the officers and meet the general manager's train at the end of the division—our office.

There was a big stir to get things ready, and when the day arrived Mr. Harvish and Mr. Benson (now Trainmaster Benson) came on No. 2 at 7 A. M. Mr. Harvish had put on his best humor for the occasion, while Benson strutted around the office and yards, trying to assume an air of official dignity which he did not possess.

Finally the official train pulled in and the officers came filing into the office, some four or five directors, general passenger agent, superintendent of transportation and several others.

Mr. Harvish was in the lead, showing and explaining, when, who should step in with the last of the party, but Johnson.

The moment I saw him the truth of the situation flashed into my mind—he was the new vice-president and general manager and had been on a real prospecting trip—when he had worked here several weeks before. Behind him came Mr. Hall, the discharged trainmaster. Harvish's countenance underwent many changes during the next few minutes after he was introduced to Mr. Hayward, while it was amusing to note the efforts of Benson to keep out of his way and sight. But it did not avail them anything; they were too late. In a few weeks a new superintendent was appointed; his name was Hall; there was also a new trainmaster. "Cripps" is now the general manager's private secretary. There are very few wrecks on the division now, and things are running smooth.—The Railroad Telegrapher.

Telegraphy and Invention.

The Abbe Barthelemy seems to have had a prevision of the practical use to be made of electricity in sending messages. Writing to Mme. du Deffand in 1772, he observes:

"It is said that with two timepieces, the hands of which are magnetic, it is enough to move one of these hands to make the other take the same direction, so that by causing one to strike 12 the other will strike the same hour. Let us suppose that artificial magnets were improved to the point that their virtue could communicate itself from here to Paris. You have one of these timepieces, we another of them. Instead of hours we find the letters of the alphabet on the dial. Every day at a certain hour we turn the hand and M. Wiard, Mme. du Deffand's secretary, puts together the letters and reads. This idea pleases me immensely. It would soon be corrupted by applying it to spying in armies and in politics, but it would be very agreeable in commerce and in friendship."

You can't afford to be without TELEGRAPH AGE.

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Hear Ye! Hear Ye!

BY JOHN A. DREAMS.

Now that the recent titanic struggle, waged with the ferocity of uncivilized warfare for supremacy in the affairs of the Northern Pacific Railroad has been amicably concluded, and by reason of which I was enabled to dispose of my large holdings at fabulous prices, thus enriching myself beyond my wildest dreams; and being imbued with a strong, healthy, able-bodied desire to emulate the altruistic example of the world's noblest philanthropist, whose many grand gifts of unparalleled munificence for educational purposes will prove an everlasting monument to his memory, I purpose coughing up the major portion of my suddenly acquired and colossal wealth ere I am ferried across the river Styx during commission hours (and I would say right now that if this river Styx is any worse than some senders I know of I'll walk around it), thereby securing immunity from the awful peril by the aforesaid philanthropist presaged. My unshaken belief in the ancient proverb, "'Tis more blessed to give than receive" is, I confess, born of the memories of my early telegraph days when George Irwin used to ring in on me his world-renowned long-distance stuph; the good old days when the hold-fast-going-'round-the-curve sender of the present was, happily, undiscovered. There still lingers on this mundane sphere many old operators who together have shared the joys and sorrows of the block, touching and retouching friends and acquaintances until the latter looked nearly as good as new, and to whose hearts these traditions of the profession are ever near and dear; non-acquiescence, in which, meaning relinquishment to all claim of ever having been first class. For the benefit of these and others my plans, in part, as determined upon and subject to change without notice, are:

1—The establishment of a fund in perpetuity from which those hereinbefore mentioned may draw a monthly pension, and of which I shall, for the present, serve as disbursing officer. I am familiar with the idiosyncracies of every blockite in the land, his needs, the limit of his touch, the uses to which his gatherings are applied—the same having been told and retold to me times without number in smoother tones than ever were uttered political platitudes by the platitudinarian Platt—and feel perfectly competent to dole out whatever allowance may hereafter be determined upon with a fair and impartial hand, using both hands if necessary.

2—The establishment of a fund from which those who invariably have a good thing in the last race may secure loans at a nominal rate of interest, thus obviating the necessity of dealing with professional money brokers whose charges are exorbitantly excessive, but with whom, as a special inducement, one may conduct negotiations without the knowledge of the management up to the very moment garnishee papers are filed.

3—The establishment of a fund for the creation and maintenance of a society for the protection of the nation's heroes against the diabolical machinations of pink tea and social equality leagues; and let it be heralded far and wide that to find the cream, the flower, the quintessence of this homogenous aggregation of pusilanimous and pragmatical hybrids one need not look beyond the "exclusive" Army and Navy set. In return for these contemplated benefactions I do not hope for nor desire temporal reward; enough for me that in future ages when my name is spoken at telegraphic gatherings some one will ask: "What did he sign?" This will lead up to shop talk and afford an opportunity for its devotees present to relate, among other tales, that in the different cities they invariably worked the "first" wire leading to another metropolis.

I am but human, and can only pray that my present income of $500,000 a year will not result in turgidity of the cranium and drive me into the vaudeville ranks. In such event I would probably become a White Rat and demand $600,000. In conclusion I beg to say that if any there are who feel that failure to make specific provision will precipitate a rupture of our hitherto pleasant personal relations, which I would deeply deplore, and will furnish me with their names and address, plainly written on one side of the paper, I will mail them a blank check, together with a copy of my latest song, pronounced an exquisite love lyric, entitled "Meet Me at Ellis Island."

The Telegraphic Heart of England.

The following data from Titbits is quite interesting: The Central Telegraph office at St. Martin's-le-Grand is the busiest spot in London. Day and night, Sunday and week day, throughout the year, the place is the scene of great activity, for the building is never closed. At this one telegraph office between 125,000 and 150,000 telegrams are handled daily. The record number of messages received and dispatched in one day is 195,411, which was the number reached on the day before the late Queen's Diamond Jubilee in 1897. There are no fewer than 1,226 telegraph instruments, and a staff of nearly 4,600 persons is employed. There are 2,470 men telegraphists, about 1,200 lady telegraphists, 880 messengers and 50 special servants. When anything important occurs the Central Telegraph Office is exceedingly busy sending reports across its numerous wires. Often as many as 500,000 words are dispatched in the early hours of the morning of a famous parliamentary speech. When Mr. Gladstone introduced his Irish Home Rule bill in 1886, over 1,000,000 words were dispatched over the wires from the head office. This is regarded at the Central Telegraph Office as a "night's" record.

Messages can be sent from this office to all parts of the world. In addition to the telegraph wires there are numerous telephone circuits, one of the most interesting being that from London to Paris. As many as 300 persons have used it in a single day, and a charge of $2 is made for every talk of three minutes' duration or less.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for sample copy.

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The Origin of the Term "Bughouse."

It is a curious fact that "slang travels faster than steam." This is vaguely ascribed to the telegraph and the operators, but no one save the operators seems to know how quickly catch phrases are made to fly from city to city. All things center in the telegraph offices; to them go all sorts of people—theatrical folk, "horsey" men, commercial travelers, men about town. Messengers, receiving clerks, and, in smaller cities, even the operators hear and are quick to "pick up" the "latest" phrases and catch words, such as will lend themselves to interjection between the messages handled on a busy wire. Telegraph offices are busy places, and those working in them must needs condense their humor into the smallest possible space or go without it; hence, telegraphic wit is generally confined to crisp things that come out with a click, and are so edged with sarcasm as to reach hundreds of miles to the man at the other end of the wire.

One somewhat vulgar word, "bughouse," originated in a telegraph office, and had a surprisingly quick popularity. An old-time telegrapher, in conversation with a representative of the New York Evening Post, tells the following story in regard to it: On a busy morning the first wire of a telegraph company between New York and Baltimore went out of balance. In other words, the delicate currents traversing it encountered a resistance great enough to cause them to cease intelligibly to actuate the multiplex instruments connected with it. The wire chiefs between Baltimore and New York were called in, and, after much testing, the trouble was located in Baltimore's instruments. The Baltimore wire chief, upon close examination, found that the trouble was caused by a cockroach, which, after tumbling into an ink well, flush with the table, crawled out and dragged its wet body upon the top of the resistance box, trying to escape into the box's interior through one of the switch plug holes.

The insects's wet body formed a connection, and this current traversed it as readily as it would have a metal plug placed in the hole; therefore, many hundred ohms too much resistance was thrown across the path of the passing currents. Hence the resistance box "had a bug," which created "wire trouble." This information was repeated to New York, when the wire started again. The story was told about the metropolitan office, discussed and commented upon, and a new slang word came into being, one just suited to telegraphic uses. Variations were settled upon within fifteen minutes, and the new bit of slang was sent flying over the country in every direction as the poor wit of the operators found opportunity to use it.

Soon afterward I was assigned to the St. Louis wire. I knew the man in the Missouri city personally, and we were much given to joking with each other. I was ready to pass the new word on to him when occasion offered, but before the opportunity came a difference of opinion arose between us over the subject matter of a newspaper special then passing between us. At an interesting point in the controversy my distant friend calmly clicked off the opinion that I "was bughouse." "Where did you get hold of that?" I asked. He said: "The man on the Cincinnati wire just yelled it at me." So Baltimore had passed the new slang to Cincinnati. St. Louis got it next, and probably passed it to Ogden, and Ogden sent it flying to the Pacific coast. Chicago had it from Cincinnati, and passed it to the Northwest. St. Louis clicked it to New Orleans and the Southwest. It could, traveling at the rate it maintained in the first fifteen minutes of its life, have traversed the United States and Canada within an hour. The operators passed it to the clerks in each office, the clerks to the messenger boys and the boys bore it into every nook and corner of their respective cities. The next day the smaller cities had the new idiom, with variations; next the small towns and rural communities received it; in a week it was worn threadbare.

Heroism of the Rail.

Railroad men, as a rule, are inclined to discount the deeds of bravery among their cult, and to scoff at newspaper accounts concerning them.

During the beginning of the work of excavating a collapsed union tunnel recently a green newspaper reporter was trying to twist together certain facts by which an express messenger, a treasure box and a "stand-by-my-post-until-death" determination should be telegraphed to appear in a local paper under the glaring headlines: "A Thrilling Deed of Heroism; or, How an Express Messenger Stood at His Post."

Asked about the matter and complimented upon the fact that his train service should develop such heroes, an official laughed merrily.

"That reminds me," said he, "of a wreck on an eastern road some years ago, in which I was interested. Through a mistake in the telegraph train orders, a freight and an excursion train were on the same track. While moving along at a lively rate the freight engineer discovered to his horror the passenger just around a curve ahead. The lever was reversed and the train came to a standstill just in time. Then occurred a scene of rejoicing such as I never before witnessed, and the joyful passengers insisted upon raising a purse for the 'intrepid' engineer. The latter allowed them to do so, and received a handsome compensation in silence. He was approached by a newspaper man, who asked him how it was that he had had the bravery to remain in the cab in the face of death.

"'Begorra, because I couldn't get out,' was the reply."

The Transmitter, a publication devoted to the interests of the Australian Post and Telegraph Association, reaches us for the month of July in a very much enlarged and improved form. The illustration of the telegraph office at Rockhampton, Australia, is particularly clear, and the general make-up of the paper would indicate that the interests of the Australian telegraphs are in excellent hands and that the publishers of the Transmitter thoroughly understand the requirements of the telegraph.

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On Balancing Quadruplex's and Duplex's.

BY D. B. GRANDY, ST. LOUIS, MO.

I noticed in your issue of August 1 a communication from my old friend, Mr. Bugbee, on the art of balancing quadruplex's and duplex's without the formality of a "ground" at the distant end, and my memory carried me back to the days before the quad was known, and before the Western Union had acquired the duplex from Mr. Stearns. In those days Mr. Bugbee and I worked together at 83 State street, Boston, and he used to do a trick in "balancing" which filled my youthful soul with envy. It consisted in tipping his chair back and balancing on the two rear legs. At this he was an expert. I tried hard for years to master the trick, without success, and I never saw his equal at it. I mention this reminiscence merely to show that feats of "balancing" come naturally to Mr. Bugbee.

But seriously, much valuable time would be saved if all who have the handling of multiplex apparatus would make it a point to "get on" to that trick of balancing without having the distant end "ground." I may here suggest, in this connection, that a balance to the neutral relay, in the case of a quad, may be obtained more speedily and accurately than by the method mentioned by Mr. Bugbee. The polar relay will work fairly well, even when far out of balance, but the neutral relay must have a perfect balance for satisfactory work, and this can easily be obtained without a ground at the distant end.

Again, Mr. Bugbee says that in adjusting the condenser for a static balance, "if the polar armature jumps when the key is closed, more condenser is needed," etc. Not necessarily. Whether it "jumps" when the key is opened or closed depends wholly on the way the home battery is connected to the pole changer and its consequent effect on the polarity of the home relay.

Some years ago I urged in the columns of TELEGRAPH AGE the advantages of an ironclad rule requiring all quadruplex and duplex batteries to be connected to pole changers in such a manner that, with keys open, the negative pole should go to line. With a uniform system so established, the polar relays of all quadruplex and duplex sets would always be "regular," no matter what wire they were placed in, and no reversal of their connections would ever be necessary. Then, too, we could know invariably whether the "jump" of the armature, when the key is closed, means "more condenser" or less. With the present lack of uniformity in "setting up" quadruplex sets you are never sure until you prove it.

NEW POSTAL OFFICE AT DENVER.—The Postal Telegraph-Cable Company has recently completed a very elaborate office at Denver, Col. The work was done under the supervision of Mr. Guy E. Paine, the superintendent of the company at Kansas City, Mo., and Mr. W. C. Black, the assistant superintendent, and Mr. J. B. Coggins, the chief operator of the Denver office.

The Delany Rapid Telegraph System.

The Delany rapid telegraph system, which has been undergoing a long process of improvement at the hands of its inventor, Mr. Patrick B. Delany, of South Orange, N. J., is now being exhibited, according to the Electrical World and Engineer, at the Pan-American Exposition. Mr. Delany some time ago perfected apparatus for the perforating of tape and sending of messages to be received and read in the ordinary way by a Morse operator. The greatest interest centers, however, about the recently completed very rapid system which uses a chemical receiver. The chemical receiver marks a radical change in rapid telegraph methods. It is based on a principle conceived some time ago by Mr. Delany, but not put in a shape to make it commercially available until the invention of a tape puncher which could be worked by an ordinary Morse operator without previous practice. Such a puncher has been perfected and completes a system of rapid telegraphy which has overcome many of the obstacles that have stood in the way heretofore.

One of the greatest obstacles to rapid sending by the Morse code has been the "tailing" or drawing out of the dots on account of the capacity or condenser effect of the line. If the line is long it acts as a condenser to discharge current through the receiving instrument for an interval after the current has been cut off at the sending instrument. Mr. Delany has ingeniously made this condenser effect or tailing help instead of hinder his work. In fact, a certain amount of capacity is necessary in the line to have the receiver work successfully, and if the line is not long enough to give this a condenser must be used.

In the Delany system a tape is first perforated by an operator working as he would with an ordinary Morse key. The tapes so prepared by the operators in an office are then put into a sending instrument to be run through at the rate of 100 to 8,000 words per minute, according to the length of the line. The message is received on a tape by a chemical receiver, and this tape is given to the various tape readers in the receiving office to decipher.

The chemical receiver is driven by a small motor, makes use of a receiving tape which has been dipped into prussiate of potash, an electrolyte which will make a blue mark when an iron cathode is brought against the tape. The damp tape is passed over rollers under three electrodes arranged side by side. The middle one is of iron, and the two outside ones of platinum. When a current passes in one direction from the two outside electrodes through the moist tape to the iron electrode in the middle, the electrolytic action causes the iron electrode to make a blue mark. Current in the other direction leaves no record, as the outer electrodes are of platinum.

To understand the working of the receiver it is now necessary to go into the working of the sending tape and instrument. The sending tape is perforated, and is run through a motor-driven sender. On the tape there is a punch mark on the under half at the beginning of each dot or dash, and a punch

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mark on the upper half at the close of each dot or dash. The horizontal distance between punch marks represents the relative length of dots, dashes or spaces. As this tape goes through the sending machine it passes under two contact fingers, one of which is over one row of holes and the other over the other row of holes. When a hole on one side of the tape passes under the contact finger on its side, a current impulse is sent over the line and through the receiver in one direction. When a hole on the other side passes under a contact finger, current is sent over the line in the other direction.

When a dot or dash is to be made, current is sent over the line in such a direction by the punch mark at its beginning, that the iron electrode on the receiving tape leaves a blue mark on the tape. The battery is, of course, immediately cut off as the punch mark passes from under the contact finger, but the capacity of the line causes it to discharge through the receiving tape and continue the blue mark until current is sent in a reverse direction by the punch mark at the close. The instant the current is reversed the electrolytic record of the dot or dash is stopped. All difficulty from tailing due to the capacity of the line is thus avoided, and the capacity is made a help instead of a detriment.

The rate of transmission possible with this arrangement is almost inconceivably rapid, and telegraphers who watch the sending of a message by this system at the Pan-American can hardly realize that a telegram has been sent in the second or two which it takes to run through a lengthy message.

In a system of this kind it is extremely desirable that the tape be perforated by a Morse operator by methods he is accustomed to. A punching machine by which the peculiar kind of tape used in the sender can be punched by the ordinary operation of a Morse key has recently been perfected by Mr. Delany. It operates one punch upon the depression of a key and the other punch upon the release of the key.

Simultaneous Telephony and Telegraphy.

An article describing the system employed on some of the main German metallic circuit telephone trunk lines, by means of which these lines can carry simultaneously telephonic conversations and Hughes type-printing telegraph messages, appears in a foreign paper. It says that bridged across the two lines in addition to the usual telephonic apparatus is an induction coil, consisting of two similar coils wound in the same direction at the two ends of an iron wire core (not one over the other). These two coils are connected in series, and their junction point is connected to the telegraph apparatus, which works with an earth return; and the same point is connected through a condenser to earth, the condenser thus shunting the whole of the telegraph apparatus. The connections of the lines at the two ends are, of course, precisely the same. It is seen that when traversed in series by the telephone currents the two windings on the induction coil tend to magnetize the core in the same way, and therefore the joint inductions of the coil is great, and it does not shunt off much of the speaking current. On the other hand, the telegraphic currents traverse the windings in parallel, and as by this arrangement they offer less inductions, they only suffice to damp the current variations just enough to prevent their acting on neighboring circuits without prejudicing the working of the Hughes apparatus. The condenser which assists this dampening action can, in some cases, be omitted or diminished in capacity, as, for instance, when the telephone line is on a pole by itself. Thus, on the bronze Berlin-Vienna line, the condenser at Berlin has been omitted, and at Vienna it has been reduced in capacity from two microfarads (which has normally been found the best value on such lines) to 0.25 microfarad. The condensers must also be carefully protected from lightning by sensitive lightning guards. Each of the windings of the coil has 15,700 turns, and a resistance of 1,150 ohms. This combined telephone and Hughes service has already been put in on the following lines: Berlin-Vienna, Berlin-Budapest, Posen-Breslau, Dresden-Chemnitz, Frankfort-on-the-Main-Strassburg (Alsace) and Hamburg-Lübeck.

Penalty for Divulging a Telegraphic or Telephonic Message.

A correspondent wishes us to inform him what the New York State law is covering the improper divulgence of a telegraphic or telephonic message. There is a special statute in this State, enacted at the last session of the Legislature, which may be found to give an effective remedy. It is Chapter 661 of the Laws of 1901, amending section 641 of the Penal Code. The object of the section, as thus amended, is to subject to a fine of not more than $1,000 or imprisonment for not more than two years, or both, "a person who (1) either wrongfully obtains, or attempts to obtain, any knowledge of a telegraphic or telephonic message by connivance with a clerk, operator, messenger or other employe of a telegraph or telephone company; or (2) being such clerk, operator, messenger or other employe, wilfully divulges to anyone but the persons for whom it was intended, the contents or the nature thereof of a telegraphic or telephonic message or dispatch entrusted to him for transmission or delivery, or of which contents he may in any manner become possessed.

Manager: "Young man, this is the 30th of the month, and it is the thirtieth time you have been late. Now, sir, unless you have a first-class excuse I am going to fire you."

Operator: "Well, the reason I have been late each of these thirty days is owing to the fact that I stepped into church on my way to work purposely to pray for the continued prosperity of the company."

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The Pacific Cable.

The bill which recently passed the English Parliament, appropriating $10,000,000 for the Pacific Cable, which grew out of approaches made to England by some of her self-governing colonies, was interesting and important, because it was the first occasion when that country had been invited by the colonies to unite with them in so great an undertaking. It was agreed by the British Government and the Dominion of Canada, and the Governments of New South Wales, Queensland, Victoria and New Zealand, that the mother country should advance a capital sum of $10,000,000 for the manufacture and laying of the cable, and that for maintenance England should be liable for five-eighteenths and the colonies for thirteen-eighteenths. The bill provided for the raising of the money and for the establishment of a Board of Control, which was to have the supervision of the manufacture and laying of the cable and its subsequent management. The Board was to consist of three representatives of England, two of the Dominion of Canada, and two each of the Governments of Australia and New Zealand.

In Parliament this subject was somewhat aired a few days ago, when Mr. Harrington said that the policy to be embodied in the bill contained a principle to which the House had never yet been committed. Public money was about to be used to interefere with private enterprise. Many interests in the country would be touched, and doubtless the scheme would be hotly criticized. Some particulars ought surely to be given. Was there to be a special tariff? Was the enormous amount of money which British citizens had already sunk in private cable undertakings to be jeopardized merely to satisfy the sentiment of a few faddists in the colonies? He, Mr. Harrington, could understand the Government proposing to have a cable to be used only for governmental or public purposes, but this was to be a competing commercial cable, to interfere with the existing cables. It was not to be worked, however, on ordinary commercial lines, but by nominees of the Governments concerned, doubtless with large salaries attaching to their positions. Mr. Harrington added the whole scheme was monstrous and absurd.

T. M. B. Association.—Assessment No. 383 has been levied to meet the claims arising from the deaths of William A. Oridge, at Elizabeth, N. J.; John Fottrell, at Wilmington, Del.; James F. Valentine, at Jacksonville, Fla.; John M. Casey, at Denver, Col.; Edgar Snyder, at Woodstock, N. Y.

If the new Edison storage battery is as efficient and economical as has been stated, it will not be surprising to hear in the near future of power being stored up in these little cells at Niagara Falls, to be transported by railroads to all sections of the United States. That appears to be the tendency of the times.

TELEGRAPH AGE should go regularly to every one interested in the telegraph.

LETTERS FROM OUR AGENTS.

To Our Correspondents.

While we are desirous to receive from our agents letters for publication respecting their various offices and of their personnel, for all efforts of this character are appreciated, we would earnestly request that such communications be confined strictly within the limits of the subject, and not so much space be devoted to hunting and fishing items and other extraneous matter, as is frequently the case. We wish to make the department of "Letters from our Agents" an attractive one, but if we were to publish all that comes to us in the shape of irrelevant matter, of no possible interest to the general reader, it would frequently require us to surrender a number of additional pages to contain it all. The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should be the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.

ST. LOUIS, MO., WESTERN UNION.

Mr. S. A. McClure, of the Chicago & Alton Railway Company, Virden, Ill., was a recent visitor.

Mr. A. V. Curran, night wire chief of the Atlanta, Ga., office, spent a few days in the city the middle part of August. Mr. Curran had been rusticating in the Rocky Mountains for about six weeks, making observations on mining, etc., for a brokerage firm of Atlanta, Ga. Mr. Curran may engage in the mining business in the Rockies, being very favorably impressed with the result of "delving into Mother Earth."

To say that we are taking "Old Father Time" by the forelock is but expressing it mildly. We will be in good shape for the Fair long before the advent of that occurrence in 1903. With an enlarged office and a coating of paint, both inside and out, our office does credit to the efforts of Manager Boble and Chief Operator Spencer.

Claire Hull died of consumption on August 21. A floral offering was sent by his many friends in this office, on the day of the funeral.

EVANSVILLE, IND., WESTERN UNION.

The wife of Lineman George Augustine, died July 28. She left one child, a little boy.

Manager W. V. Duke spent a few days recently in Chicago with his son Warren. Mrs. Duke and her youngest son are spending the summer at White Sulphur Springs, Va.

Mr. Joseph Madden is translating code to English for the Journal-News. Henry Kilburn is filling the vacancy made by Mr. Madden's absence.

N. M. Booth, who was manager of this office in days long gone by, drops in occasionally and talks by

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wire to his old friends. He is hunting the forty-niners that assisted in organizing The Old Time Telegraphers' Association in Cincinnati, September 7, 1880.

EVANSVILLE, IND., POSTAL.

Manager Charles Shea has the supreme title of Director-General of the Elks Carnival that comes off September 2-7.

Mr. George O. Christie has transferred his services to the Postal, St. Louis. C. O. Balden fills the vacancy thus created.

C. C. Jacobs, of Chicago, is night operator in place of Smith Dunning, now working for the Western Union, New York. Mr. Jacobs works this end of the wire for J. J. Chandler, broker.

Miss Ella Boyle, chief clerk, is very popular with all who do business with the Postal. Six hustling young men rush to answer district calls and deliver messages. They are paid for each message delivered and each "pick up" brought in. This insures better and more satisfactory service than when boys are paid by the month.

ST. LOUIS, MO., POSTAL.

It may not be generally known that the St. Louis Postal office has the fastest long-distance duplex in the world. On our New York duplex, July 26, with Messrs. W. H. Miles and W. C. McCain at St. Louis and G. O. Heath and J. I. Hilliard on the New York end, we handled 916 messages between the hours of 8 A. M. and 5 P. M. It is an every day occurrence to handle 1,000 messages on shorter circuits, but to handle 916 messages in nine hours on a circuit of more than 1,200 miles through two sets of repeaters is something to brag about. This duplex will be one of the World's Fair features in 1903.

CHICAGO, ILL., WESTERN UNION.

Mrs. Arthur Galey has been seriously ill for some time, but we are pleased to hear of her recovery.

Mr. George Porter had a serious attack of apoplexy. He was found in an unconscious condition and was taken to his home.

Mrs. Lowe has recovered from another spell of sickness.

Miss Jessie F. Wilson, who resigned July 24, is working for the Western Union in New York.

Mrs. Adonis T. Hebe, who came here a few days ago, has been assigned to the La Crosse local.

Dr. Ault, the optician and former operator, is with us now and then nights on the extra list.

Wire Chief Benjamin Powell is taking a much-needed vacation.

The uppermost thought among members of The Old Time Telegraphers' Association is the reunion, which will be held in Montreal September 11, 12 and 13. All anticipate a fine time.

Miss Mary E. Thorp, formerly of the Wheatstone department, was quietly married on August 12 to Mr. Arthur J. Buffington, who is connected with the Swift Packing Co., of this city. Miss Thorp was a general favorite while here, and the happy couple have the congratulations of the entire force. Mr. and Mrs. Buffington will go to housekeeping in about a month, when cards will be issued to their numerous friends.

Mr. and Mrs. Edward Ames, recently of this office, have taken up their abode in Milwaukee, and are employed in the Western Union there.

Miss Annie Morrison has returned from her vacation looking much improved.

Messrs. Chromister and Ditch, detailed to Oklohama Territory temporarily, have just returned to Chicago.

NEW ORLEANS, LA., WESTERN UNION.

The heavy storm which visited this section about mid-August caused a few poles to go down, but the Western Union's skilled hands soon had things to rights again.

Recent visitors: Messrs. C. H. Johnson, wire chief, Memphis, Tenn.; A. H. Stewart, chief operator; W. K. McClaren, chief foreman, and Mr. McLane, "conduit man," all of Nashville, Tenn.

PHILADELPHIA, PA., WESTERN UNION.

Miss Eva Clinger, daughter of Mr. Thomas Clinger, of this office, was married recently to Postmaster W. T. Parkinson, of Norwood, Pa.

Mr. D. A. Mahoney is the proud and happy father of a boy.

Mr. H. A. Leavitt is another jubilant father of a first-born son.

Mr. Edward Kearns, a well-known Pennsylvania Railroad operator, and brother of Benjamin Kearns, of the Record office, died recently in New York.

Miss M. Gaffey, late of this office, but now located in Baltimore, was a recent visitor.

Mr. R. C. Toft, a well-known operator, who was formerly with us, suffered a bereavement in the loss of his father, who died recently.

INDIANAPOLIS, IND., WESTERN UNION.

Our quad chief, Mr. M. S. Allen, with his family, recentlty visited relatives at Terre Haute, Ind.

Recent visitors: Mr. Arthur Burr, chief operator of the Western Union, at Richmond, Ind., with his wife, stopping on their way to Montezuma, Ind., where they were to spend a vacation; Mr. Deacon Hunt, one of the oldest telegraphers in Indiana, who is employed with the Vandalia Line, at Ben-Davis, Ind.

Mr. James Berry, of our extra force, resigned to accept a position with Granger Farwell Co., brokers. He is a candidate for Council, Thirteenth ward, and his election is considered most certain.

Mr. William Fette, aften ten days' vacation, is again at his usual post, Chicago local, nights.

Mr. Joseph Rapp, of the St. Louis office, after spending a month with us, has returned. He was one of the stars in the recent ball game between the Indianapolis and Cincinnati clubs, played here. During his stay with us he made many friends who were sorry to have him leave.

Miss Flo. Greely, after spending a month's vacation at Yellowstone Park, is again on duty looking after the St. Louis local.

Arrivals: Messrs. H. F. Sarbar, F. W. Kellogg, I. A. Merrick.

Departures: Messrs. H. F. Thorpe, G. B. Hawley.

Mr. Harry King, of Trons pool room, has been helping out during the rush.

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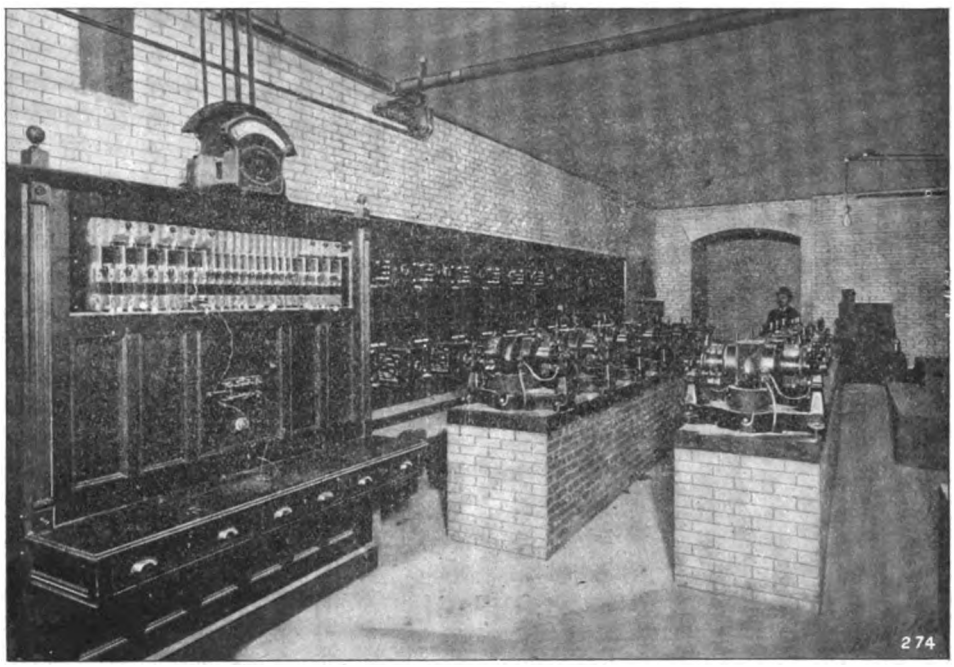
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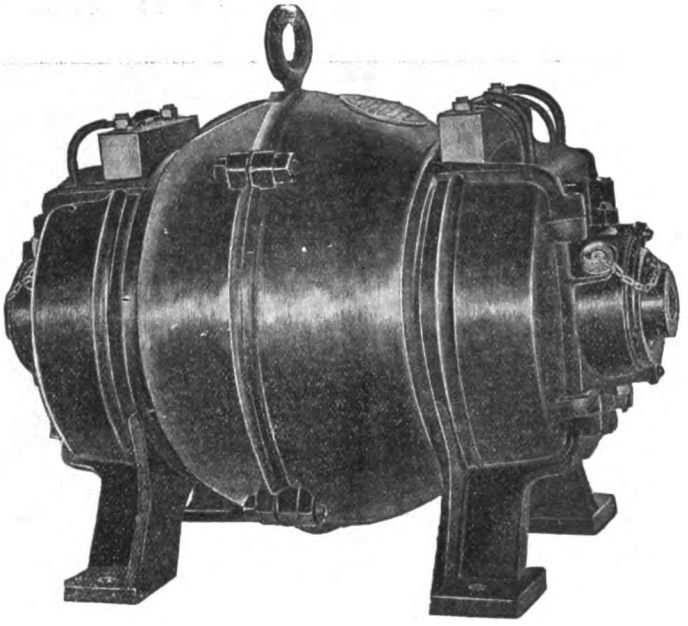
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CHICAGO, ILL., POSTAL.

Mr. M. M. Smith has been appointed traffic chief vice M. H. Arthur, resigned. Mr. Smith was relieved by Mr. W. H. Mills, of the Milwaukee and city line division. Mr. W. G. Phillips relieved Mr. Mills as assistant in that division.

Our esteemed chief operator, Mr. J. E. Pettit, was away last week enjoying a vacation.

Night wire chief, B. C. Elder, has just returned from a ten days' vacation.

Mr. Forrest, of the Milwaukee bonus wire, has been doing remarkably well of late. Some days ago he had gotten his day in at 1 P. M.

Quad chief, G. K. Smith, has been absent for some time, caused by sickness.

Mr. George Dorr, of the Indianapolis local, is also away on the sick list.

Mr. Deno, of the office at the Board of Trade, is with a broker for a short time. Mr. P. A. Duffy, manager at Kalamazoo, Mich., was a recent caller at our office.

Arrivals: Miss Lucy Wigton and Frank M. Lowe, transferred from Des Moines, Ia.; Messrs. Merrick, Murphey, Paxton and Abrams.

PHILADELPHIA, PA., POSTAL.

Peaches, melons and sweet potatoes have the call on the new Delaware lines. Mr. Richard Ziegler, the well-known old-timer, at this end, is establishing a record in moving that business which gives satisfaction to everybody along the line.

"Put Me Off at Buffalo" is the popular reply to the query: "Where will you spend your vacation?" Traffic Chief Geo. W. Dunn, and Cashier Geo. G. Glenn, are among the latest to take the trip.

Mr. Benjamin H. Moore, private secretary to Superintendent Adams, had a few days pleasant outing.

Mrs. C. W. Power and Mrs. E. J. Matthews have arranged for a month and five weeks' vacation, respectively.

General Manager Jas. R. Ash, of the New York, Philadelphia and Northern Telegraph Company, was a recent visitor, returning with Superintendent C. C. Adams from a tour of inspection.

Miss E. Stratton has been transferred to the North-American office, days, vice Joseph Hockery, gone with the Western Union.

Mr. Geo. B. Morris, of the Chicago local, has been called upon considerably of late to fill temporary vacancies at various broker's offices.

Chief Operator C. A. Stimpson, and family, spent a week's vacation visiting at several near-by points.

Don't get disheartened over your lost grip and hard work sending, a few weeks' persistent use of the new Twentieth Century Relief Key will do wonders for you. Terms and information cheerfully given. Leo Miller, this office. (Adv.)

MONTREAL, QUE., CANADIAN PACIFIC.

A telegram has been received from Mountain Grove announcing the condition of Mr. George Ivory, to be serious and that his ultimate recovery is unexpected. Mr. Ivory passed through here from Philadelphia about six weeks ago, where he had been employed for the Western Union. He was also employed in this office several years ago.

Mr. J. F. Richardson has returned from Windsor, Ont., where he had been for the past six weeks, superintending the construction of a cable for the Dominion Government.

Mr. David Ryan, train dispatcher at Brownville, Me., who is spending two weeks' vacation in this city, and Mr. Thomas Greatorex, of Holeb, Me., called to see the boys.

Mr. J. H. Hemming, of the Commercial cable office, Hazel Hill, N. S., passed through here en route from the Pan-American.

Mr. Herdman, of the Canadian Pacific Railroad, Halifax, N. S., was a recent visitor.

Mr. J. Giguere and Mr. J. Lavigne, of the receiving department, are spending a vacation in the country.

KANSAS CITY, MO., POSTAL.

Manager W. C. Burrows, of Leavenworth, Kan., was a recent visitor to the operating room.

Traffic Chief Thomas Ingram has been on a vacation at his old home, Bowling Green, Mo. During his absence C. C. Holloway assumed the duties of his office. John Hall, of the Chicago wire, nights, has also been absent on a month's vacation.

Business was heavier in this office during July and the first part of August than ever before in its history.

NEW YORK, POSTAL.

Mr. J. F. Skirrow, the assistant manager, is an extremely busy man these days, devising and planning schemes to cover the various telegraph points during the International boat race, which is to take place the latter part of this month.

Returned from vacation: Mr. John Fredericks, night western wire chief; general traffic chief, F. F. Norton; Miss M. Bryant, Mr. H. Marks, Miss Bella McDonald, of the city department.

On vacations: Manager C. Shirley is in the Adirondacks; western wire chief Edward Rankin, is at Greenwood Lake, N. J.; chief check, T. J. Sullivan, J. H. Twyford, night loop chief, are in Canada; James Mingle is at Rangeley Lakes, Me.; Isaac Naftal at Seagirt, N. J.; Miss L. Moss and Annie Marmion at Long Branch. Miss Emily Marmion transferred to a private wire position during a two months' vacation of the regular operator.

Resignations: Miss Sophie Menting, Miss A. Simmons.

Arrivals: Miss F. Jessen, Miss C. Holmes, Fred E. Brown.

MONTREAL, QUE., GREAT NORTHWESTERN.

Circuit manager Thomas Rodger, has returned from Toronto and Buffalo, N. Y. Walter Graham, chief operator, acted as circuit manager during his absence.

Chief operator Walter Graham, has completed extensive improvements to the switch and wires coming into this office.

Wire chief R. E. McCord, has recently com-

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pleted the erection of a third quad to Quebec. The Montreal office is fast becoming one of the finest in America.

Miss Ida Phelan has returned from her vacation at St. Agathe, Que.

Messrs. William Buckingham, E. Y. Daly, W. E. Burris, C. W. Souls, Herbert Keating, Mr. Dungan and Miss E. G. Peeples are the latest additions to our staff of telegraphers.

Clifford Swinburn, Gertie Egli and Gertie Lucas are the latest additions to the check force.

Miss May Howard has been promoted to one of the tickers.

Miss E. G. Peeples, of Halifax, is doing fine work on our New York quad.

Mr. W. M. Thompson suits very well on our cable wire to North Sydney and duplex to St. John, N. B.

Clifford Byrd does fast work on Quebec at night.

Albert Ross and Mr. Elwell are on extra.

Resigned: Miss Dunn, Miss Phelan, Halifax, N. S.; Mr. Walter Cosgrove, Ottawa, Ont.

Mr. N. W. Bethune, superintendent at Ottawa, Ont., paid us a visit recently, accompanied by his daughter.

Mr. Nobles, our press operator, is subbing for Operator T. Dewitt, at the Daily Star, Mr. Dewitt being on his vacation.

Herbert Baker is away on his vacation.

Miss "Joe" Phelan has accepted a position with a broker.

Mr. J. Lanskail speaks very highly of the operators in Quebec.

NEW YORK, WESTERN UNION.

Miss Mattie Van Ausdall, one of the most expert lady telegraph operators in the country, has been added to the force. Miss Van Ausdall comes from the West, where she gained her experience in telegraphy.

Mr. Gardner Irving, manager of the Commercial news department, is rusticating at Lake George, N. Y.

Mr. James McParlan, manager of the Marine Department, is now enjoying his annual vacation.

The members of The Old Time Telegraphers' in this office, headed by Mr. John Brant, the genial secretary of the association to the number of some fifteen, expect to attend the Montreal reunion.

On vacation: H. A. Fitchett, D. W. McAneeny, T. F. McGannon, W. N. Shiber, in charge at New York Journal.

Appointments: J. L. Danback, E. E. Cunningham, J. C. Powers, R. A. Dickinson, E. C. Bailey, B. A. Metzger, James N. Sapp, W. M. Wolff, Frank E. Barrett, C. J. Applegate, F. M. Byrne, E. J. Moon, W. A. Yoell, J. D. Kirby.

Resigned: H. O. Wydman, Miss Minnie J. Garey, Miss Ruth D. Jessen, and J. F. Keogh.

Mr. Perry F. Irish has again resumed duty, working short hours.

Mr. Harry A. Sauer, president of the Telegraphers' Aid Society, is still in the Catskills, and it is said is regaining his health.

The wife of Daniel A. Murphy, and the mother of A. F. Murphy, operators, both of this office, died August 21.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

Artistic and mechanical drawing by J. B. Barrett, 195 Broadway, New York. (Adv.)

Miscellaneous Items.

A trade publication is invariably taken and read by the most progressive men in the business represented.

The cable steamer Mackey-Bennett, after doing some cable repairing in Nova Scotian waters for the Commercial Cable Company, has returned to Halifax.

Mr. E. W. H. Cogley, assistant superintendent of telegraph of the leased lines of The Associated Press, New York, will leave in a few days on his annual vacation.

Mr. L. R. Freeland, chief operator of the Postal Telegraph-Cable Company, Binghamton, N. Y., was married on August 14 to Miss Mabel Davison, of that city.

Mr. E. Stannard, chief operator of the Western Union Telegraph office, Shreveport, La., has embarked in the brokerage business. His friends wish him every success.

The veteran telegraphers of The Associated Press will meet in annual convention at Cincinnati, Ohio, on September 7, when it is expected a most enjoyable time will be had.

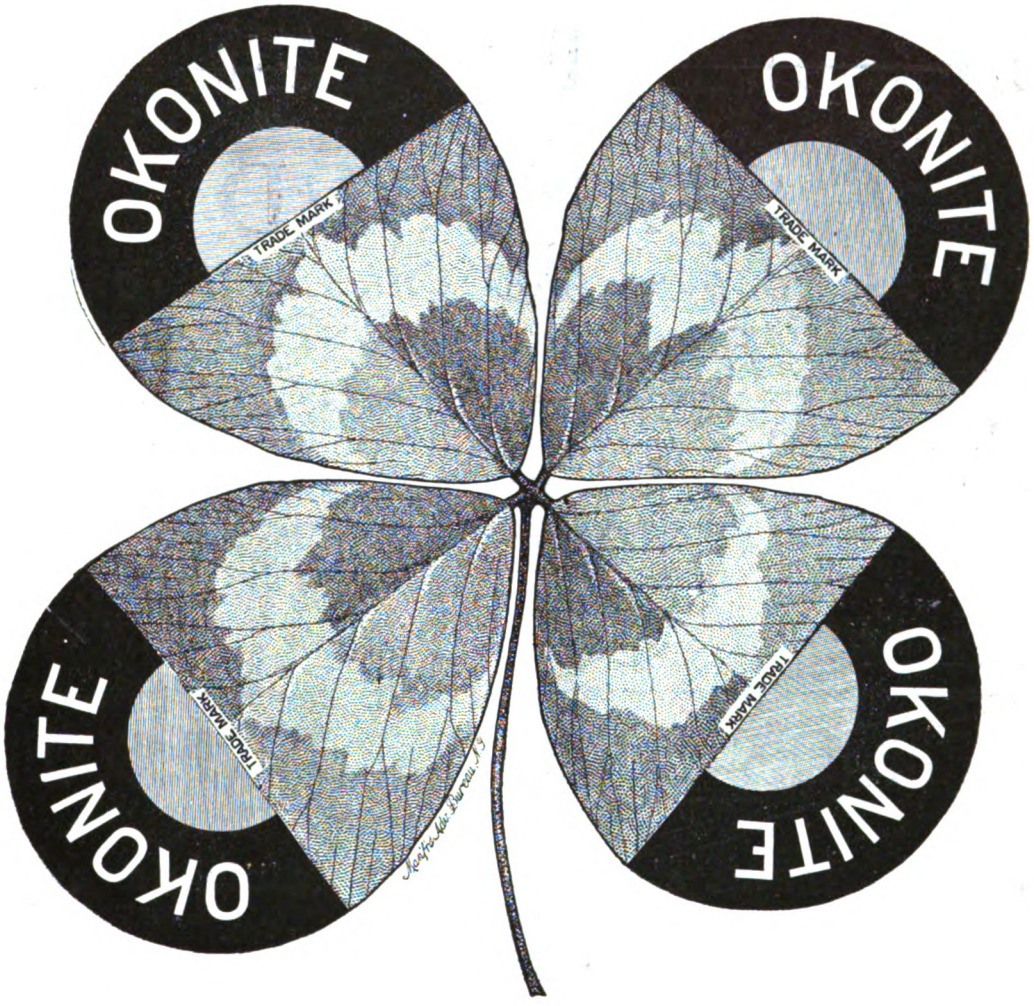
The North-American Telegraph Company, with headquarters at Minneapolis, Minn., Mr. H. A. Tuttle, general manager, has decided to string two additional copper wires connecting Minneapolis with Chicago, to accommodate the increasing business.

Mr. J. J. Davis has been appointed acting chief operator of the New York Stock Exchange office of the Postal Telegraph-Cable Company, vice B. F. O'Reilly, resigned. This extremely busy telegraph center is presided over by Mr. S. E. Ostrom, who has been a hustling manager in the financial district ever since the company was organized for business. Mr. Ostrom understands the telegraph situation in the financial district from A to Z, and although an old-timer, he is still youthful in appearance.

A subscription to TELEGRAPH AGE is regarded as a good investment.

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Personal Mention.

Mr. Albert Beck, secretary of the Commercial Cable Company, New York, has arrived from Europe.

Mr. E. G. Cochrane, general superintendent of the Postal Telegraph-Cable Company, New York, is absent enjoying his annual vacation.

Mr. Geo. G. Ward, vice-president and general manager of the Commercial Cable Company, New York, accompanied by his wife, has returned from Europe.

Mr. H. J. Pettengill, for many years superintendent of the Postal Telegraph-Cable Company, and now vice-president of the Michigan Telephone Company, at Boston, Mass., sailed for Europe on August 24, accompanied by his two youngest sons, to be absent about two months.

The many friends of Major R. B. Hoover, one of the old time telegraphers, will be pleased to learn that he is now in business in New York city, where he is secretary of the Magneto Electric Co., a position he is well qualified to fill. The Major will be recalled as having suggested the memorial to Professor Morse, which resulted in the erection of the fine statue in Central Park. For several years past he has been connected with the Central Union Telephone Company, in Ohio and Illinois.

Mr. J. B. Van Every, vice-president and auditor of the Western Union Telegraph Company, recently presented to Mr. Charles A. Tinker, president of the Telegraphic Historical Society of North America, the original annual report of the New York, Albany and Buffalo Telegraph Company, to cover the year 1848. The document, although in the handwriting of a bookkeeper, is a voluminous as well as an interesting one, and is a valuable addition to the archives of the Historical Society.

The bronze statue of the late Gen. E. B. Fowler, the war commander of the Fourteenth New York Regiment, who at the time of his death, in January, 1896, was auditor of the Commercial Cable Company, New York, which is to be placed in Fort Greene, Brooklyn, will be unveiled on Sunday, May 18, 1902. It will be the forty-first anniversary of the departure of the Fourteenth from Brooklyn for the front in the Civil War. General Fowler's granddaughter, Ethel Baker Moody, daughter of Mr. William H. Baker, general manager of the Postal Telegraph-Cable Company, will unveil the statue.

Obituary.

Robert Moore, aged 50, a train dispatcher on the Grand Trunk Railroad at Bellville, Ontario, died recently at that point.

Z. R. Bennett, a well-known New York printer, and who in the early seventies published The Operator, the paper of those days representing the telegraph profession, died recently in New York city.

Hector Mackenzie, vice-president of the Montreal Telegraph Company, Montreal, Que., and the head of a prominent dry goods firm, that city, died on August 20.

Charles E. Hotaling, manager of the Postal Telegraph-Cable Company at Albany, N. Y., died of consumption at Loon Lake, N. Y., on August 20, whither he had gone in hope of arresting this dread disease. Previous to his promotion as manager, about six months ago, Mr. Hotaling was night chief operator at the same place for a number of years.

Erastus Lewis, who for the past quarter of a century had been train dispatcher of the Erie Railroad, Jersey City, N. J., died on August 17. Mr. Lewis was one of the fattest men in the United States, tipping the scales at 520 pounds. He was well and favorably known in the railroad and telegraphic fraternity, and notwithstanding his great weight, was a first-class telegrapher. He was for a number of years president of the Fat Men's Association of New Jersey. Notwithstanding the crowded condition of his division, he never had a railroad accident charged to him.

Samuel J. Gifford, who was the first telegraph operator on the Lake Shore and Michigan Southern Railroad, and dispatched the first train ever run over it on telegraphic orders, died in Dunkirk, N. Y., August 18, aged 67 years. After filling positions on the Erie and Lake Shore road as operator and train dispatcher, he became a partner in the firm of Skinner & Gifford, which built large shops in Dunkirk for constructing engines and railroad fixtures, and also built in 1875 and 1876 the Texas and New Orleans Railroad, now the Southern Pacific Railway. Mr. Gifford later went into the insurance business. He is survived by his wife and one son. He was a forty-niner of the telegraph, and was a member of The Old-Time Telegraphers' Association.

Deafness Cannot be Cured.

by local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure deafness, and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian Tube. When this tube is inflamed you have a rumbling sound or imperfect hearing, and when it is entirely closed deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but an inflamed condition of the mucous surfaces.

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A New System of Signaling, for Telegraphy, Fire and Police Alarm, Railway Semaphores, Switches, &c.

Among the many inventions that have come in with the new century none in the electrical field have caused more interest and inquiry than the practical application of the magneto to all forms of signaling apparatus, as lately introduced by the Magneto Electric Co.

This system, without the aid of any battery or dynamic currents whatever, is capable of being applied to telegraphy, fire alarm and police telegraph, military field telegraph, railway semaphores and switches, fog signals, flash lights, etc. The invention has passed the experimental stage, and now demands of the intelligent electrician and investor a place among those discoveries which mark epochs of evolution and revolution along the lines indicated.



DR. L. E. NILES.
President of the Magneto Electric Company.

With the new apparatus messages have been sent by the Morse code from New York to Buffalo and return, while experiments show that the same current will carry clearly from New York to San Francisco, without the necessity of repeaters. The fire alarm apparatus has also had an exhaustive test, an alarm having been turned in over a circuit of actual working wire, in wet weather, for a distance of over 100 miles. The semaphore system is a wonderful application of the power of the magnet. With it a man can with ease transmit his own energy along ordinary telegraph wires of a railway to any distance required for block or other systems, where it is reproduced with power enough to raise and lower signals of all kinds, including crossing gates, and to throw switches with ease, thus getting rid of all the cumbersome levers, wires along the tracks, and the battery, which in some places, has to be buried in wells to keep from freezing in winter. In addition to changing semaphores and switches, the same movement lights at night lamps of any color at given points, thus giving notice to the operator of the signals that his movements are correct.

This system will bear careful investigation by all who are interested in signal apparatus of any kind. By dispensing with all battery currents, and their cost and care, the expense of operation and maintenance will be reduced to the minimum, while the efficiency will be greatly in advance of the other systems depending on mechanical or battery means, which are ever subject to changes in temperature, defective insulation, etc.

The Magneto Electric Company has a line of instruments showing the different applications of their system at their general office in the Park Row Building, New York. The president of the company is Dr. Louis E. Niles, formerly of Springfield, Ohio, but who is now giving his entire attention to the new enterprise, and who has demonstrated by his keen ideas of finance and business the success of the proposition. At the start his friends discouraged him, and even electricians told him it was impossible to do the work outlined. While it was admitted that signals could be made in this way, it was doubted whether the length of the signals could be controlled so as to make the Morse code, but this was soon proven to the satisfaction of all concerned, and good and basic patents were granted on all the claims. Had Dr. Niles been an electrician this important system might have remained undiscovered for years, as he might have thought, like others, that it could not be done. But he looked upon the matter as one of business importance to the world, and insisted that the new system would work perfectly, and, with that tenacity peculiar to his nature, fought the matter through to success. Like Morse with the telegraph, Bell with the telephone, and Field with the Atlantic Cable, he worked against great odds, and with many discouragements, until finally he has established a business which is a credit to his untiring energy and faith in his own convictions.

The inventor of the magneto system is L. G. Woolley, of Kenton, Ohio, a gentleman of retiring disposition, but with a very active mind, who has taken out over two hundred patents, many of great importance, and who is a great help to President Niles. Much of the success of the new company is also due to the treasurer, W. S. VanBrocklin, of knit goods fame, of Amsterdam, N. Y. Major R. B. Hoover is secretary of the company, and is well known all over the country as the originator of the plan to erect the Morse statue in Central Park, New York, and of late years has been identified with the telephone business in the central States.

There is certainly a great future for this system, supplanting, as it will in time, the battery systems, and substituting therefor one which has no points of contact to corrode, and which can be relied upon at all times. After the first installation it costs nothing to operate it. As the saying goes, it does not run back into the coal pile at any time, and in this way, as in many others, has much to

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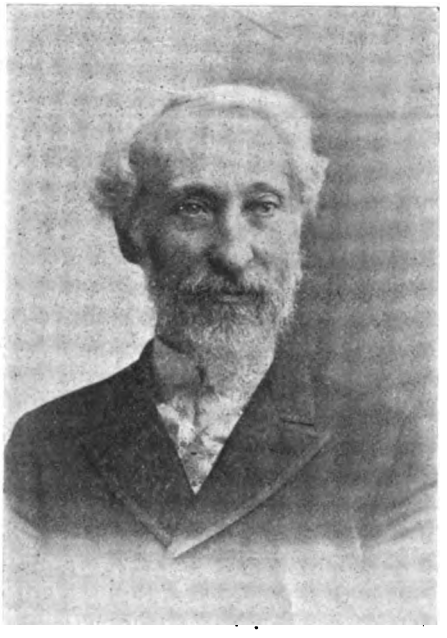
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commend it to the careful attention of those who are constantly on the alert for that which is better than the old at a less cost of production.

Rapid Telegraphy.

BY PATRICK B. DELANY.

The comments on automatic, or rapid telegraphy, in The Electrical World and Engineer of August 3, and reprinted in TELEGRAPH AGE, August 16, and the presentation made of the views of those opposed to such systems, invites a few criticisms. It seems strange that in drawing comparisons between the operation of the Morse and the automatic, Morse men, who must know better, invariably assume that the Morse wire is always clear, and the operator holding his key open for the next message to be handed to him, hence the argument that a message can be sent by key in the time that it takes to prepare it for automatic transmission. Nothing could be more misleading. The main delay between the handing in of the message at the window and its lodgment in the messenger's delivery book at the distant station is at the sending end, where it hangs on the operator's hook anywhere from one minute to an hour, according to the time of day and working condition of the lines.

Any one who has ever spent a week in a telegraph operating room knows this to be the case.

The average delay in transmission of messages by the Morse system throughout this country is over thirty minutes. This is the time they hang on the operators' hooks waiting their turn.

In times of serious interruption to lines four or five hours' delay is not unusual, and the train is not infrequently resorted to for avoidance of still greater detention. Telegraph companies provide wire capacity adequate for their traffic when all the wires are in good working order. They do not maintain reserve facilities for interruption contingencies. A day's rain over an area of two or three hundred miles causes a drop in carrying capacity of about one-third. Here is where messages accumulate on the operators' hooks to be culled out by the traffic clerk who decides from their contents which will bear the most delay.

The claim that a Morse operator can send a message while another operator is punching one is, of course, true, but when there are twenty messages on the Morse man's file, the last one will be delayed about three-quarters of an hour. With the rapid system affording ample facilities under all circumstances so long as there is one wire left, no such accumulation could take place, and if all the wires were stopped the idle force could be employed in perforating, so that upon partial restoration of facilities, all business could be cleared out quickly, thereby avoiding delay to fresh business coming in for hours after full repairs had been made.

Now, with reference to the estimate of the time it takes a message to get from the sender to the receiver, obviously the time it takes to get it to the office, or the time used up by the messenger delivering it has nothing to do with systems of operation. It is true, the sum of the whole transaction is what interests the customer, but to assume that in practice, one minute, or one-sixtieth of the whole, covers the transmission period, is, as every telegraphist knows, as wrong as the Scotchman's conception of extravagance.

It is all well enough to point out the half-minute transactions between stock exchanges. No one disputes them. But what about the ordinary telegram? The receiver has no means of knowing when it was lodged at the distant office. The time of its reception around the corner is plainly shown, but the "6.15 P. M." lends no suspicion of the fact that the message was filed at its point of origin at 10.20 A. M. On the contrary it inferentially conduces to the conclusion that it is fresh from the pen of the sender. It is claimed that telegram time has been greatly shortened of late years, and I believe it to be so; but when the companies let the receiver know how long the message has been on the way it will be a great benefit to the public, and an honest transaction on the part of the company.

Until telegraph companies are compelled to follow the post office example in this respect the best tip to those using the telegraph would be to state the time in the body of the message and pay for it. It will have a wonderful effect, although the receiver may not be impressed with it.

In view of the fact that ordinary messages average about three-quarters of an hour from the filing window to the messenger's delivery book, and that during at least two-thirds of this time it is on the operator's table, it seems like straining at the gnat to dwell upon the time consumed in perforating and transcribing. Admitting that it may take from five to twenty minutes, according to the number of messages upon one tape, for these two operations, is it not better to get them off this way than let them hang on the Morse hooks?

Recently, owing to two notable improvements in printing telegraphs, perforation of messages on tapes, heretofore held by Morse managers to be so serious a drawback, has, I am glad to see, been recognized as an advantage, owing to the increased speed of transmission over the line. Up to this point, then, the rapid system and the printing systems are equally handicapped. The difference now lies in the fact that at the receiving end the message is printed, either directly by the receiving instrument, or as a secondary operation by using a received perforated tape to operate a type machine automatically. In the case of the rapid system the message is transcribed on an ordinary typewriting machine from the dot and dash tape by any one knowing the Morse code, and as fast as they can read and work the keys. Transcription in this way being a local operation, gives the operator the same control of the type machine as when working from printed matter or manuscript. It is neither difficult nor uncertain. Nearly all cable telegraphy is done in this way, and this is the most difficult and urgent of all telegraph working. The perforator used by the rapid system is worked by an ordinary Morse key, and the speed of transmission is at

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least twenty times greater than is possible by any printing system. Any Morse operator can perforate at his best speed, and any operator can transcribe. The working force of an office is instantly available for the new system.

The rapid will work over any kind of a line, any distance without repeaters—at a speed—and in its operation is simple compared with quadruplex outfits and their repeaters. It requires practically no adjustment, being within a wide range unaffected by changes in circuit conditions; and it affords at all times absolute certainty of communication, with facilities equal to any emergency. These advantages, impossible of attainment by any electromagnetic combination, are of paramount importance, and indispensable for reliable communication and low rates.

The official reports of economical managers show that the limit of cheapness has been reached with the present systems. It is also evident from these same statistics that the numbers of messages at present charges is about at a standstill—one per head per year—at 30 cents for ten words. Telegraph managers have contended that there would be no economy in high speeds, no increase of business by lower tolls, that the telegraph is an emergency medium, and urgency cannot count the cost. It is strange that business men should argue this way. Examples are overwhelmingly against them. One will suffice just now. It is most apposite. Sunset methods in telephony have been moved eastward to Chicago to pull the "pay high or go without" policy out of a $5,000,000 deficit.

Messrs. Theo. Audel & Co., publishers, New York, have just placed on the market a book entitled "A B C of the Telephone." As is indicated by the title, this book is an elementary and general treatise. It deals with the telephone industry and the leading features of its development to the present time in such a fashion and in such language as to enable the student and the non-professional reader to derive an intelligent idea of the broad facts and general principles. Of course, with such an aim in view, it cannot be claimed that the book will furnish all the details and formulæ that may be required by the thoroughly equipped telephonist. Such facts, at best, can be mastered only after practical experience and careful training and, without this, no book can guarantee a thorough education in the profession of constructing and maintaining telephone plants.

The price of this book is $1.00. Copies can be obtained from John B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

On Our Literary Desk.

The July number of the Pennsylvania Railroad Men's News contains a biographical sketch of Col. William Bender Wilson, of Philadelphia, Pa., an old-time telegrapher and president of the United States Military Telegraph Corps. Photographs of Mr. Wilson taken in 1850, 1856, 1862, 1865, 1876 and 1885 are shown. The history of Colonel Wilson is an extremely interesting one, and the author, Martin C. Carey, has placed before the readers of the News a finished and satisfactory story of the colonel's life up to the present time. This reminds us that Colonel Wilson has been quite a voluminous writer. His works include: "Acts and Actors in the Civil War," "History of Emmanuel Church," "General Superintendents of the Pennsylvania Railroad Division, Pennsylvania Railroad Company," and two octavo volumes, "History of the Pennsylvania Railroad Company."

"Acts and Actors in the Civil War" is now quoted among the rare Americana pertaining to the Civil War. Colonel Wilson's history of the Pennsylvania Railroad makes up about 750 pages of matter that is intensely interesting, particularly to railroads, and which is fully and profusely illustrated.

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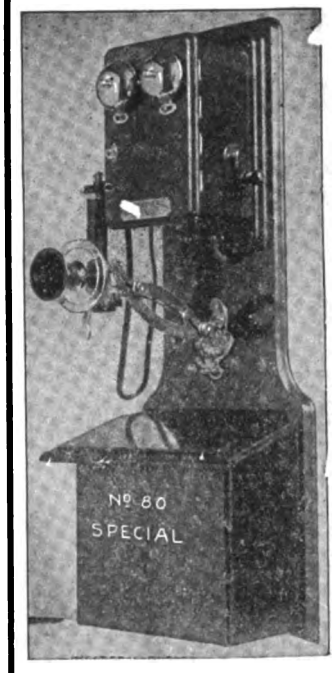


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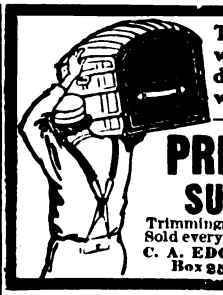
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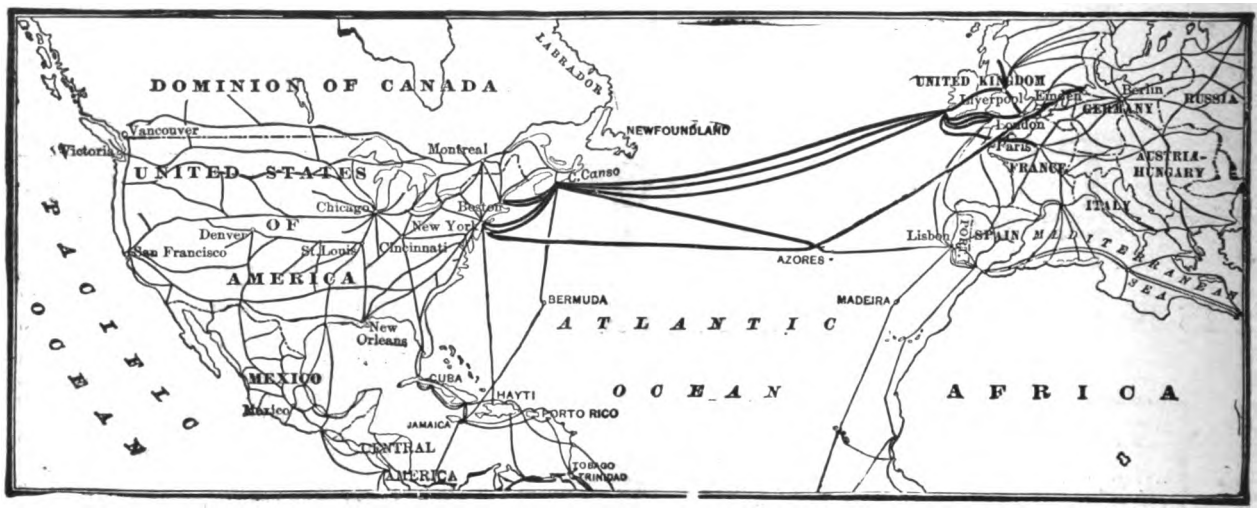
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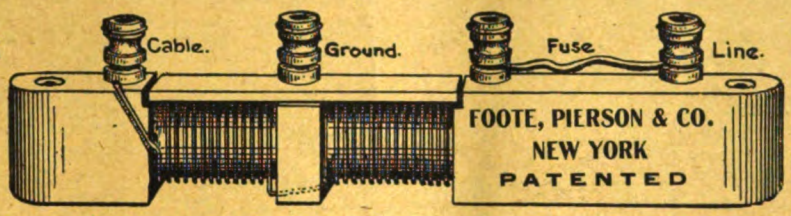
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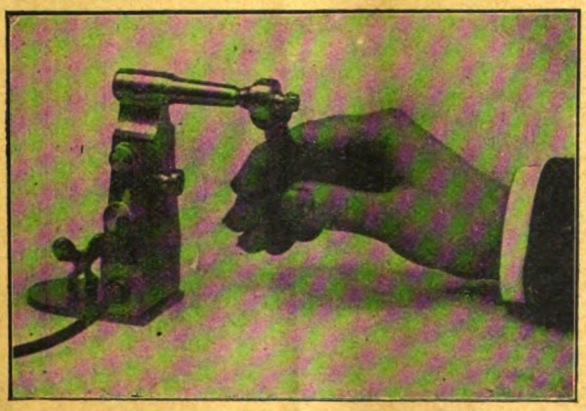
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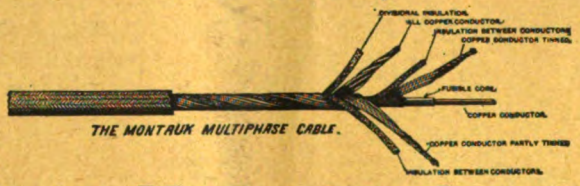
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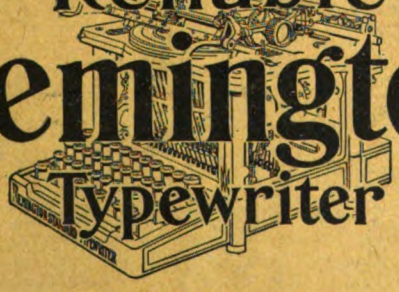
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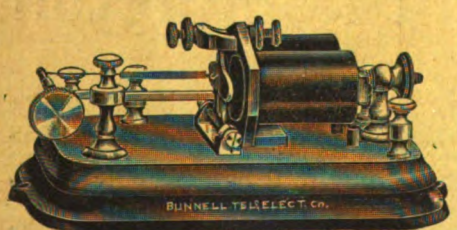
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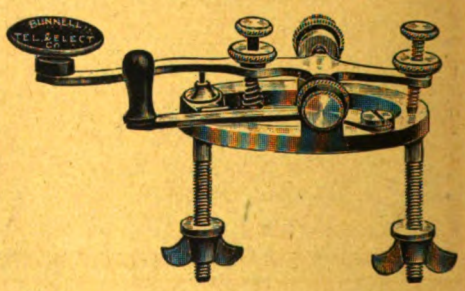


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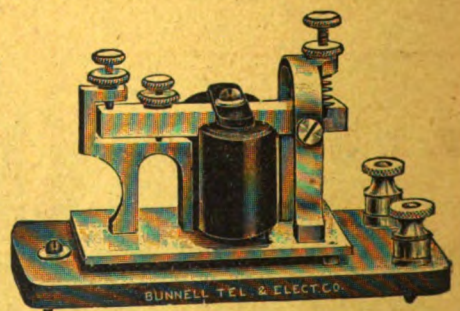


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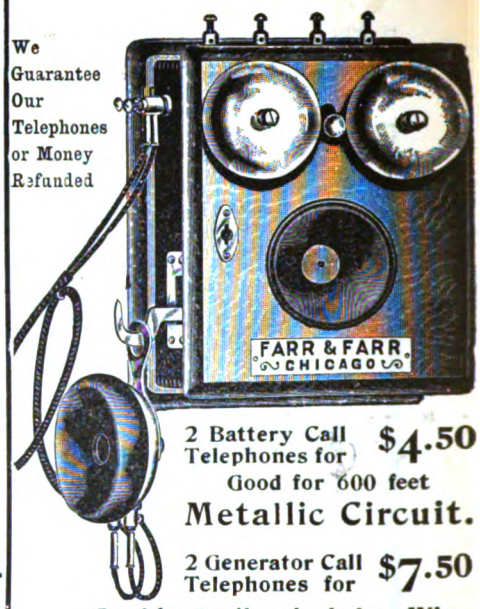
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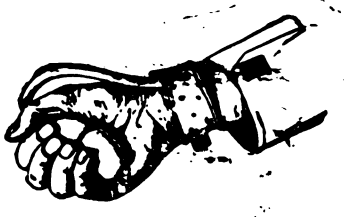
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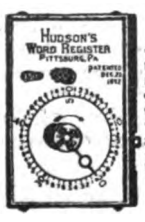
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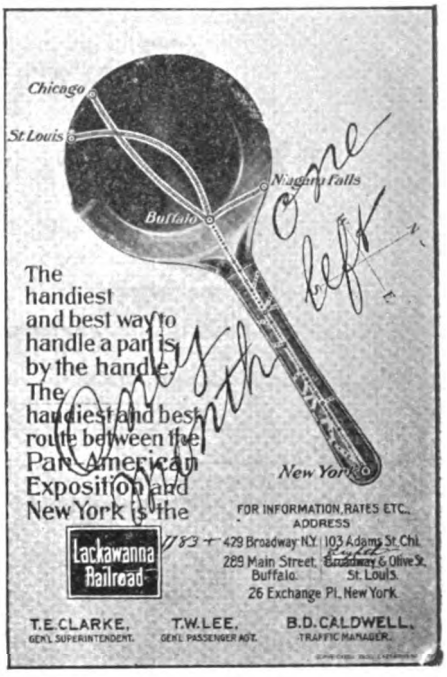
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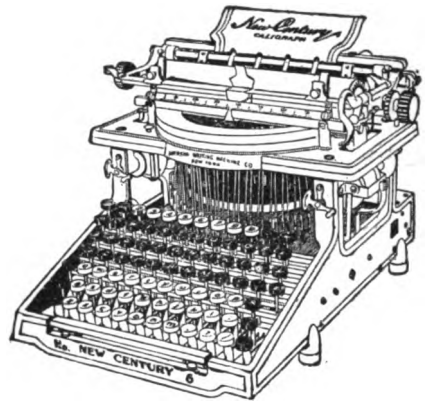
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No. 18. NEW YORK, SEPTEMBER 16, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

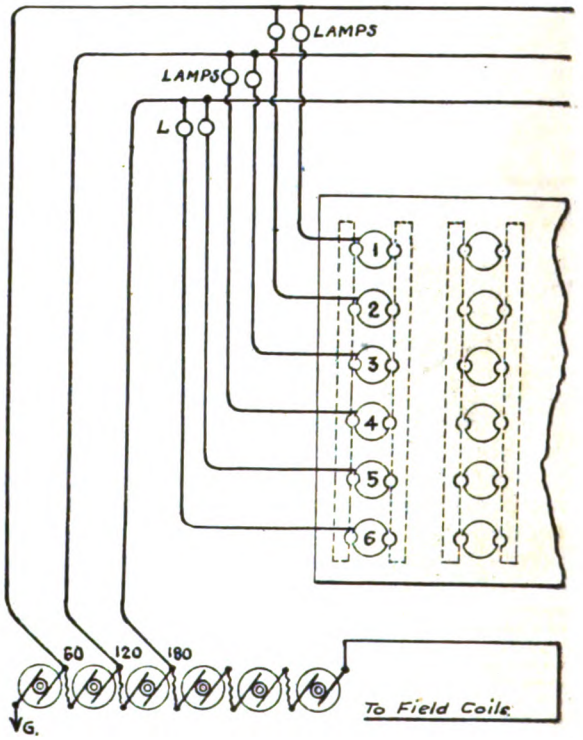
The Equipment of a Modern Telegraph Office, Continued.

BY WILLIS H. JONES.

In the preceding issue of this journal the manner of determining the proper type of dynamos and gage of house wires necessary to equip a modern telegraph office were explained in a general way, but it still remains to show the number of such machines required and the actual running and connections of conductors throughout the building.

At this point it may not be out of place to state that the same plans arranged for a dynamo system will hold good where storage battery furnishes the current. This is because the latter, like a dynamo, possesses practically no internal resistance, its energy being exerted entirely upon the external circuits. Where bluestone or gravity batteries are used, an entirely different plan from the one about to be described obtains, for the reason that a great portion of the work such batteries perform is done within the jars themselves.

The capacity of the dynamos having been decided upon, the next question to be settled is that of their value of their respective electromotive forces. To a certain extent this is somewhat a matter of choice, especially so far as local circuits are concerned. In a large office the various lengths of circuits demand separate values of electromotive force, usually designated as first, second, third, etc., potentials, while the longer quadruplex circuits require a still greater pressure. Where the number of potentials demanded do not exceed two or three it would be possible to meet the requirements by purchasing two machines, one of, say, 100 volts and the other 200, and run them separately. A better plan, however, is to divide the value of the highest electromotive force required for the longest circuits into as many practically equal parts as there are potentials required and place that number of like machines together in series as you would arrange a row of bluestone battery jars. Thus six machines of, say, 60 volts each in series would give 300 volts at the brush of the last dynamo.



Taps from the first, second and third machines, extended to three separate rows of disks at the main wire switchboard, would be designated the first, second and third potentials, or 60, 120 and 180 volts, respectively. The fourth and fifth taps are usually reserved for quadruplex apparatus. In addition to the tapped dynamos they usually add another machine to the series, the duty of which is to furnish exciting current to the field coils of its five companions, which coils being also in series consequently share equally in volume received,

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thereby maintaining a constant value of electromotive force in each machine.

A row of machines arranged in this manner is called a "gang," and there must be a duplicate of the series, identical in every respect, to furnish an opposite polarity of current from that of its companion; then a third gang, also identically arranged, is necessary as a reserve, to be substituted instantly should either of the other two become temporarily crippled and need repairing. Having decided upon this arrangement the plant should be located in the cellar, if possible, or at least as near the ground as convenient in order to secure a firm foundation and avoid vibrating the building.

The accompanying diagram shows the general outline of the manner in which the current is distributed to the main switchboard of the operating department. A tap from the first machine carries the first potential of 60 volts along the top of the switchboard, from which lead a connection is made with each individual disk in a designated row which extends horizontally across the full width of the board. Similar leads from the second and third machines extend in like manner, the second and third potentials of 120 and 180 volts, respectively, to the switch, and thence to other rows assigned for battery purposes.

The taps from the dynamo room are called main "leads," and should be composed of a strand of a dozen or more large copper conductors twisted together and carried to the operating department in the form of a well-protected cable.

In practice such leads are not actually connected to the brushes of the machines, as shown in the cut for the purpose of simplicity, but to what are called "bus" bars, to which the respective brushes are connected. As the cross section of the said leads is sufficient to carry all the current demanded by the many circuits to the top of the board without causing a material "drop" in the value of the electromotive force of the machines, the former are themselves sub-tapped and each new branch connected through a lamp resistance to one of the disks in a row numbered and designated for battery purposes only. Each potential occupies a separate row of disks, or rather two rows, in order to avoid the necessity of feeding two external circuits from one disk.

A glance at the diagram will show that the battery disks are situated directly between two perpendicular brass bars, which latter being the beginning of two external circuits, may either or both be fed by the one disk, but on account of the lamp resistance inserted between the said disk and the connection with the main lead at the top of the board, it is better to provide an additional disk of identical potential for the side companion in case both circuits should demand the same electrical pressure. The presence of any considerable amount of resistance in a branch conductor prevents the practical subtapping of such circuit for the reason given in the preceding installment of this article—viz., it would cause an inconstant volume of current to flow into the two wires fed therefrom owing to the law of joint resistance.

As each separate disk is connected through a lamp the value of the ohmic resistance, of which is just double the number of volts per potential, its presence would cause the said annoyance to develop in a very exaggerated form, where one circuit is decidedly longer than the other. The importance of providing separate taps from the main battery leads to each individual circuit should not be overlooked. It is a mistake too frequently made by novices. The rule is to insert at least two ohms resistance for each volt of electromotive force per potential; thus for 60 volts the lamp should contain 120 ohms, the second potential 240 and the third 360, respectively. The object of inserting this resistance between the dynamos and the wires is to prevent the overheating, or destruction of the armatures of the machines through the excessive volume of current which would otherwise follow the accidental grounding of a circuit near the office. The resistance material employed for the purpose may be either lamps of carbon filament, or coils of fine German silver wire. The advantage of using lamps for the purpose lies in the tell-tale light which appears the moment a circuit becomes dangerously loaded with current and thus instantly warns the chief operator in charge.

(To be continued.)

Recent Telegraph Patents.

J. Burry, of New York, has received a patent for a printing telegraph.

I. H. Blessing, of Albany, N. Y., has obtained a patent for a telegrapher's finger guard.

A patent for a fire alarm system has been granted to C. E. Lombard, East Wilton, Me.

A United States patent for a method by which several telegraphic messages can be transmitted at the same time through one conductor or by wireless telegraphy has been awarded to A. Bull, Cologne, Germany.

New York Visitors.

Mr. J. E. Dunning, a veteran telegrapher, Paterson, N. J.

Mr. Francis J. McKenna, Western Union Telegraph Company, Pittsburg, Pa.

Mr. Edward E. Cord, night chief operator Western Union Telegraph Company, Memphis, Tenn.

Mr. William de la Motte, manager of the Western Union Telegraph Company, Sandy Hook, N. J.

Mr. Thomas T. Clark, of the Western Union office at Palestine, Tex., accompanied by his wife.

Mr. C. B. Horton, assistant superintendent of the Western Union Telegraph Company, Omaha, Neb.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for sample copy.

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Personal Mention.

H. P. Dwight, president of the Great Northwestern Telegraph Company, who a year or two ago presented a library to the village of Dwight, Ontario, has established two other libraries at Baysville and Dorset, Ontario.

Mr. John Van Horne, up to three years ago vice-president of the Western Union Telegraph Company, New York, and who since that time has retired to his country home in Kentucky, was visiting friends in New York a few days ago.

The steam yacht Rapidan has been chartered for the season by Mr. H. L. Shippy, of J. A. Roebling's Sons Co. This yacht is up to date in every particular, and Mr. Shippy is issuing invitations to telegraph and electrical officials to accompany him on his weekly cruises.

Sir Wm. Van Horne, the old time telegrapher and now a capitalist of Montreal, Que., has gone into a submarine signal company which has been organized at Waterville, Me. He said recently: "I went into it owing to the interest I feel in the St. Lawrence route, and because the recent discoveries in submarine signaling seem to me to promise just what is necessary for the safety of navigation."

Mr. Astley C. Terry, for twenty years a chief operator and electrician for the Western Union Telegraph Company, at Buffalo, Syracuse and Pittsburg, has resigned his position to accept the management of the American Telephone and Telegraph Company, at Pittsburg, Pa. A host of friends in the telegraph service regret to see Mr. Terry sever his connections with telegraphic interests. They, however, wish him every success in his new venture which begins so auspiciously for him.

Obituary.

Geo. Boland, for thirty years a telegraph operator at Hoboken, N. J., died on August 22.

George A. Kent, aged 35 years, operator of the West Shore Railroad Company, at Palmyra, N. Y., shot and killed himself on September 2.

E. C. Hart, aged 56 years, manager of the Western Union telegraph office at Wooster, Ohio, for the past twenty-five years, died of apoplexy on August 30.

Resignations and Appointments.

Mr. M. B. Reynolds has been appointed manager of the Western Union Telegraph Company at West Chester, Pa.

Mr. R. A. Lewis, of Springfield, Mass., succeeds M. W. Walsh as manager of the Western Union telegraph office at Holyoke, Mass. The latter returns to White River Junction, Vermont.

Miscellaneous Items.

Mr. James Douglas Reid, a nephew of the late Hon. James Douglas Reid, and son of Douglas Reid, of River Falls, Wis., was married to Miss Mabel J. Peters at New Richmond, Wis., on August 15. Their future home will be in Minneapolis, Minn.

A new storage battery system has been installed in the office of the Western Union Telegraph Company at Jacksonville, Fla. Mr. L. R. Vignes installed the plant.

Mr. Frank W. Mack, up to a few weeks ago superintendent of The Associated Press, New York, has become connected with the Minneapolis, Minn., Times, as managing editor.

Wire tappers at Tonawanda, N. Y., a few days since attempted to tap pool room wires, but the scheme leaked out before they had an opportunity to accomplish their purpose.

Mr. A. D. Bartholomew, of Battle Creek, Mich., writes the following: "I am pleased to hand you $1.50 subscription to TELEGRAPH AGE, an amount which I consider very small in comparison to what the paper contains. Every operator should appreciate what you are doing for the fraternity in many ways. Those who do not take the AGE certainly are missing much valuable information that might aid them in their work."

Business Notices.

Part six of "The Ericsson Series," the attractive little eight-page brochure published by the Ericsson Telephone Company, of 296 Broadway, New York, has made its appearance. It is fully up to the preceding issues in regard to the fund of telephone information furnished, and contains an interesting article concerning the telephone in Belgium. Telegraphers and others will find it useful for reference. It may be obtained for the asking, and the company will take pleasure in forwarding copies to all who may send requests for them.

The Audison, a secret sounder, an advertisement of which appears in another column of this issue, was adopted by several of the leading dailies seven years ago and found a ready market throughout this country, in Canada, and in Mexico. It was adopted by the War Department of the United States Government at the opening of the Spanish-American war, and in April of this year the United States Signal Service at Washington ordered an equipment of improved Audisons. The instruments are thoroughly well made and are indorsed by operators and newspaper men generally.

The application for a position as an operator of a left-handed lady telegrapher was rejected for mechanical reasons. She was told that she could be employed if she could use her right hand, which change she refused to make, but suggested that if some one would place a diamond ring on her middle left finger she would willingly change her name.

Those who contemplate subscribing for TELEGRAPH AGE, and who would first like to inspect a sample copy, should not fail to write for the next issue.

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Names That Incorrectly Designate.

With all the experience this generation has had in the manufacture of new names for the products of invention and discovery, it seems, says the New York Times, as though great skill and facility in the performance of the task ought to have been acquired, but such is not the case. Possibly the ancients had the same, if not as frequent, trouble in deciding what to call things, but if so, the records of their controversies are strangely few, and fewer still were their failures to reach entirely satisfactory solutions for the problems of this sort encountered by them. The case of "automobile" is only one of many in which we have confessed ourselves utterly beaten, and, after long and profitless struggles, have weakly accepted a name that violates all the rules of the game, and illustrates every possible fault a word may possess. So, too, we are close to the point of confessing that "wireless telegraphy" is the best we can do with the several related methods of communication of which Marconi's is the best known. Of course it isn't "wireless telegraphy," except in the very absurd sense that there is a break of greater or less extent in the wires used, but nothing that is really much better has yet been proposed, and the misnomer has practically taken a permanent place in the language it disgraces. Discussing this name in The Western Electrician, Mr. A. F. Collins shows that of all the suggested substitutes—"space telegraphy," "spark telegraphy," "etheric wave telegraphy," and one of his own invention, "cableless telegraphy," which is quite the worst of the lot in our opinion—none can correctly designate all of the different systems in the new class, and none either deserves or promises to replace the wretched "wireless telegraphy" among laymen or electricians themselves. Mr. Collins sees hope only in the probability that at some future period the all-wire system will be abandoned entirely, and that both telegraphing and telephoning will be done in the so-called wireless fashion. "Then," he says, "there will be no confusing qualifying adjectives, for there will be no dual systems requiring qualification, and wireless telegraphy and telephony will be spoken of simply as telegraphy and telephony."

We have received from the publishers, D. Van Nostrand Co., New York, a copy of "Electromagnets," by A. N. Mansfield, S.B., 155 pp. This volume is the outgrowth of an attempt to revise No. 64 of "Van Nostrand's Science Series," that is, "Electromagnets, the Determination of the Elements of the Construction," by T. H. Du Moncel. As it was found impossible to revise it without completely rewriting it, it was deemed best to publish the present volume as a new number in the "Science Series." No claim is made for originality, but an attempt has been made to collect, in convenient form, formulæ and data which are essential to the design and construction of electromagnets for various purposes.

The price of this book is 50 cents. Copies can be obtained by remitting to J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

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Cipher Code for General Railroad Telegraphing.*

BY C. S. RHOADS.

While no doubt the majority of the railways here represented either now have, or have had, during the past, some form of "Cipher Code," the fact that your Topic Committee has asked us to consider the question at this convention, must be taken as evidence that there is need of something that will enable a "Knight of the Key" to have a better conception of the old saying that "Brevity is the soul of wit." Can this not be done by reducing the length, if not the number of telegrams, so that the poor fellows will have time to exchange witticisms with one another across the table instead of "pegging" away every moment of their hours while on a "trick," and then put in extra time at the close of day in getting together to forward by train mail what should have gone by wire in an abbreviated form, and no doubt have saved money thereby for the company by having them acted upon much sooner?

Since being requested to prepare something on the above caption, the writer has not had time to make any extensive research as to just what extent the cipher code is being used, nor with what success among our neighbors. But, judging principally from my own limited experience (which has been rather of an experimental nature), I am of the opinion that what we need to make it a thorough success is to have a code that will apply to the stereotyped phrases used in the different departments of the railroad service, and then have the same adopted as the standard for North America, the action to make it so presumably to come through the American Railway Association.

On the Big Four system we prepared a code specially for the local freight department, and put it in use between three of the largest cities. The result was of a satisfactory nature so far as applied to the local business of our own road, but when it came to the joint service with connecting lines (which form a large portion of this class of telegrams) we soon observed the necessity for a standard system for all roads to make it thoroughly practicable. Our traveling auditors have a code of their own, which only the general auditors and traveling auditors for obvious reasons have copies of.

The Association of American Railway Accounting Officers have adopted a code which was formulated by a committee of that association some two or three years ago, which, it seems to me, contains the basis of what might be enlarged upon to fill the requirements of every department of the service. It contains numerous sub-divisions, one for each department. For example: Car Service Department, cipher words beginning with "C." Freight Auditing and Freight, cipher words beginning with "F." General Freight Department, cipher words beginning with "G."

Each subdivision is arranged in alphabetical order, this arrangement being considered better than an arrangement by subjects, for the reason that no two persons would have the same idea as to the best way of classifying subjects, etc., under the latter plan. Consequently, there would be more or less difficulty in finding a desired phrase, while an alphabetical order is very simple. By having the code words in each subdivision begin with a letter having a direct connection with the department using that subdivision, instant reference can be made to the proper part of the code when a message is to be interpreted. A number of extra code words were inserted in each subdivision, with the understanding that after the code was adopted by the association, any road wishing to add one or more phrases might apply to the secretary to insert such phrases, designating a code word for each, and notifying all members of the association by the monthly bulletin.

In addition to a code of the nature outlined above, would it not be well to have a private code for the use of presidents, general managers and general superintendents only? There are often telegrams pertaining to the executive and administrative affairs of the service that should be so strictly private that not even the clerks in their own offices should have copies of their code. It is not my purpose to insert herein a list of code words to be recommended. One can soon be arranged after the matter of adopting a standard has been perfected. At a previous meeting while the question of unnecessary telegrams was being discussed, a member of the association suggested as a remedy that "each person be furnished a telephone." While this plan is being rapidly adopted, it don't seem to have the effect of reducing the telegraphing, which, like our country, appears to still be on an "expanding" basis. We make a request for a certain number on the 'phone, and about two times out of three get the reply, "line busy." Now the query is: "Shall our code not be useful in reducing the number of 'phones?" Just imagine what a saving in time of both the wire and the clerk (or even official) to have, for instance, instead of: "Yes, we had a delightful time at the theater last night; that ice cream was immense, but I didn't like the way you made 'goo-goo' eyes at that blonde waitress one bit," the one word "Quack." Then the reply: "Oh, don't say a word—I overslept myself, got to the office an hour late this morning and couldn't get down to business until I'd called you up—don't mention blondes—your black sparklers are good enough for me. Will be around again to-night. The 'old man' is waiting to use the 'phone—so long"—all contained in the one word "Smack."

This may sound too ludicrous, but if we can say anything that will have a tendency to cut out unnecessary telegrams, whether by Morse or 'phone circuits, in addition to establishing a standard cipher code, we will be entitled to a line from the general manager, reading: "Well done, thou good and faithful servant; enter your name for an increase on next month's pay-roll."

*Read before the Convention of the Association of Railway Telegraph Superintendents, at Buffalo, N. Y., June 19, 20, 21, 1901.

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The Argus Lightning Arrester.

BY W. E. ATHEARN.

The Argus lightning arrester, now adopted as a standard by the Western Union Telegraph Company and used largely by the United States Government on its military lines, represents the culmination of many efforts to secure an adequate protection to telegraphic apparatus, and, at the same time, to keep the lines in working condition during the continuance of a thunderstorm.

An outline of the principles involved in its construction, and the steps taken in its development, may be of interest to those who have to do with telegraph and telephone service.

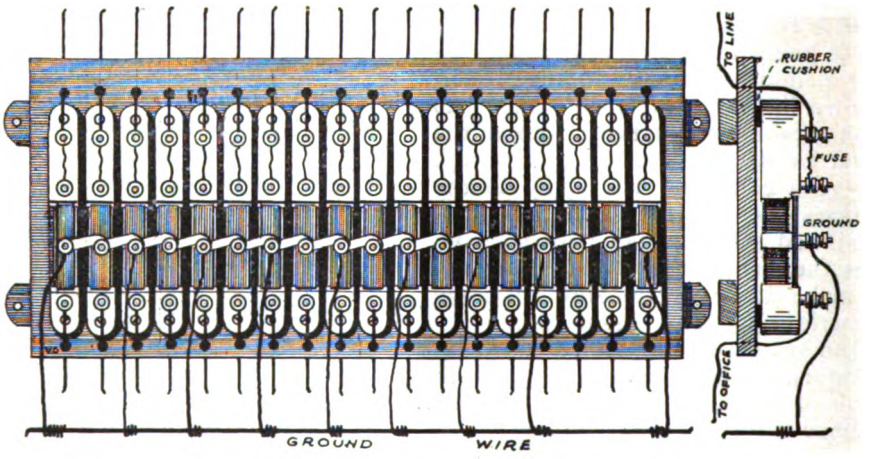
It is a well-recognized fact that one effect of a lightning discharge is to cause a more or less powerful alternating current to surge along any wire or electrical conductor in the vicinity of where the discharge takes place. The great development within the past ten years of electrical systems, making use of alternating currents, has directed attention to the peculiarities of such currents, and thus paved the way for a more thorough understanding of the effects of lightning, and of what to do to ward off its destructiveness. When we deal with direct currents we bear in mind Ohm's law and concern ourselves only with the three items—current, voltage and resistance. With alternating currents, however, there is one more, and a very important matter, too, to be taken into account, and that is impedance. A few feet of wire, which would hardly be taken into consideration, if dealing with direct current, can be wound into a coil and form almost a perfect barrier to the passage of an alternating current.

This principle has been made use of in the lightning arrester invented by Dr. Lodge, of England, and also by other inventors, both before and after him.

Here, then, we have a simple means by which we can arrest the surging current passing along a wire by placing in its path a coil, acting as a barrier, or dam, and at the same time providing a path for the lightning to the ground by connecting to the wire, just before the dam, a metal plate, separated by a small air space, from another metal plate connected to the earth.

It is not enough, however, simply to free the line from lightning, but we must do this without disturbing the working conditions of the circuit. When the lightning discharge jumps from the line plate to the ground plate its heat is apt to raise a burr or projection on the latter, which reaches across the air gap and forms a metallic path to the ground for the direct currents, thus destroying the usefulness of the line till the burr has been filed off.

In the Argus arrester the coil is made of a bare wire wound in a spiral groove on a porcelain shank. The coil itself acts as one plate, and a metal strip connected to the ground, placed lengthwise of, and adjacent to the coil, completes the lightning path to earth. This plate is adjusted at a slight angle, so that the distance from the convolution of the coil, nearest the line, is about one-eighth of an inch, while further along the coil the distance is about a thirty-second of an inch. This causes the arc of lightning discharge to be broken up into a dozen or more little discharges, no one of which is of sufficient intensity to raise a burr on the ground plate.



THE ARGUS LIGHTNING ARRESTER.

With this construction of a lightning arrester we appear to have the ideal arrangement, in that it arrests the lightning, and at the same time maintains the circuit in perfect working order without attention from a lineman. The proper proportions to give its various parts have only been ascertained after years of experimenting and with upwards of 40,000 arresters in actual use.

There is also to be considered, in protecting a line from lightning, where the arresters should be placed. Its proper place is where the wire leaves the pole line to enter an underground, submarine or office cable. There is more than one reason for selecting this place for the arrester. Naturally one would say, it was so placed simply to protect the

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cable itself. This is true, so far as the cable is concerned, but the arrester thus placed is also in its most effective position for protecting not only the cable, but the apparatus inside the telegraph or telephone office. As I remarked before, in dealing with alternating currents, impedance must be taken into consideration, and there is a certain impedance in all wires gathered into the form of a cable far greater than when the wires are supported separately on the pins and glass of a pole line.

If you should place a lightning arrester at the office end of an underground cable, you would note this peculiar effect. Thunderstorms in your immediate vicinity would do but little damage, while those at a distance would be likely to burn out some of your instruments. The reason is plain: When the surging wave of distant lightning is produced, current enters the underground cable, its voltage is greatly reduced by the impedance of the cable, and it may pass the arrester without jumping to earth, and yet have sufficient quantity to melt the wires in the delicate electrical instruments. If the storm is close at hand and the cable short the impedance would not be enough to reduce the voltage, so that it would fail to be deflected to earth by the lightning arrester.

As it would be impracticable to connect each line wire direct to its arrester cables are used to gather the lines to a box on the pole, or to a cable house, in which the arresters can be placed.

Cables in general use for such purposes can carry a current of about fifteen amperes without injury. It often happens that accompanying thunderstorms are furious gusts of wind, so that the wires may be blown into contact with electric light or power circuits. Should such a cross exist and the lightning, by jumping to the ground plate establish an arc for the power circuit, the latter might develop sufficient current to melt the cable leading from the line wires to the arresters. To guard against this the Argus lightning arresters are provided with a fuse, which can carry from five to seven amperes. This fuse is not designed to be blown by the lightning itself, and therefore should be made as heavy as is consistent with the safe carrying capacity of the leading in cables. What is called five-ampere fuse is about right for general use. The protection of office instruments from sneak currents below five amperes is no part of the duties of the lightning arrester, and should be attended to by suitably designed protective fuses.

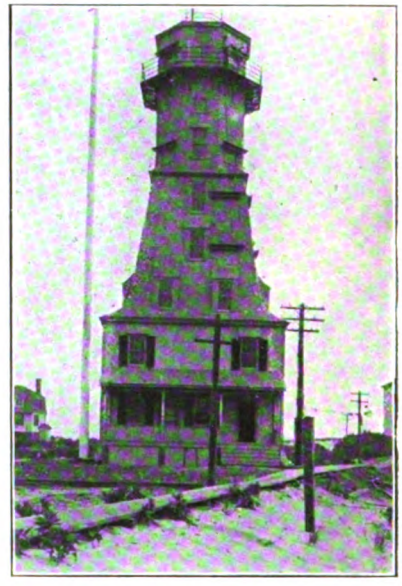
There is one more important subject to be considered in connection with lightning arresters, and that is the size and surface of the ground connections. The laws governing this do not appear yet to be well understood, but practice has shown that in addition to mere carrying capacity considerable surface is requisite. When several Argus arresters are mounted together frequent taps of smaller sized wire should be made from the ground plates of the arresters to the large, common ground wire. Care should be taken to have the main ground avoid all sharp bends, and especially not to have any coils in it, otherwise it may itself act as a dam or barrier to the free passage of the lightning discharges. Too much care cannot be exercised in providing the best possible ground connections.

Of course, when we speak of lightning on the wires we mean its inductive effects, for when lightning directly hits an object it generally smashes it to pieces. In a case like that the Argus arrester will save your office, but the arrester itself is likely to be melted into a heterogeneous mass of brass, copper and porcelain.

New Western Union Tower.

The old tower of the Western Union Telegraph Company at Sandy Hook, owing to its long years of service, has been taken down and a splendid new structure erected in its place.

The new tower is ninety feet high, and thirty feet wide at the base. Especially selected timber, of which the tower is constructed, is bolted with iron rods and plates, making the structure as substantial as it is possible to construct works of this character. The tower has to withstand a terrific wind pressure, there being a clear sweep of the wind across this portion of Sandy Hook. The lower part of the tower is finished as a dwelling with all modern improvements to be used by Western Union employees. In addition to this tower the company owns three houses in the vicinity, where reside the operators whose duty it is to constantly watch at the top of the tower to sight and report incoming vessels.



NEW TOWER OF THE WESTERN UNION TELEGRAPH COMPANY, SANDY HOOK, N. J.

William de la Motte is manager of the company's interests at this point, and his assistants are Emil Zilly and S. F. Phillips.

Send for a sample copy of the next issue of TELEGRAPH AGE.

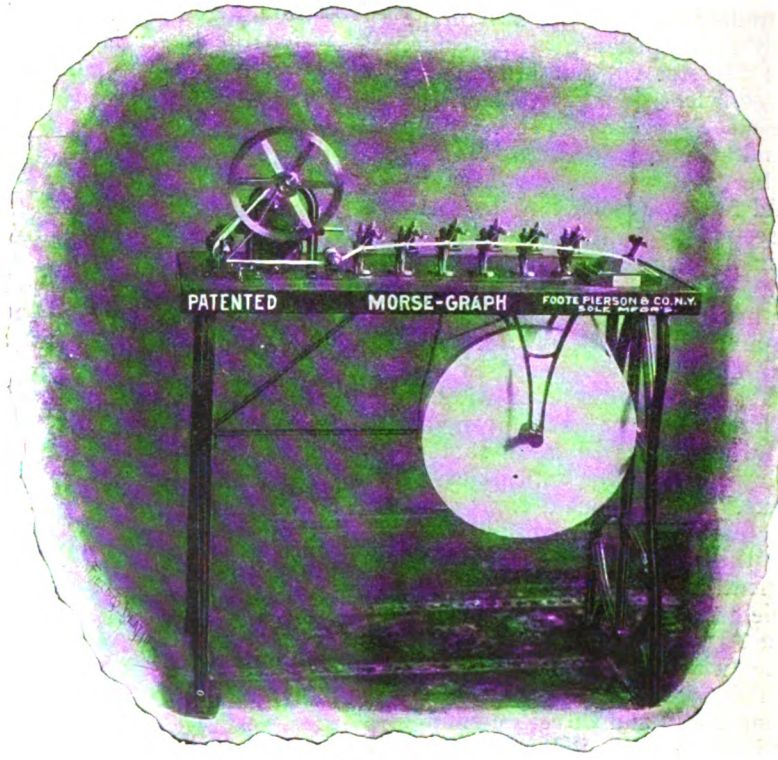
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The Morse-Graph.

A recording telegraphic apparatus, known as the Morse-Graph, has been patented by Mr. J. F. Skirrow, the electrical expert and assistant manager of the New York main office of the Postal Telegraph-Cable Company. The specific purpose of the apparatus is to make an accurate record of the signals transmitted by telegraph operators.

Heretofore there has been no check upon or record made of these signals by telegraph and railroad companies and lessees of telegraph circuits, the operator's statements that the signals were transmitted or received in a certain manner being the only explanation available in case of error.

A number of these machines have been constructed for the Postal Telegraph-Cable Company's principal offices and for some of the firms using leased wires, as a check upon telegraphic errors. All users of this device have had satisfactory results.



THE MORSE-GRAPH.

The apparatus, herewith illustrated, consists of a shunt wound motor which draws a paper tape over a series of marking or recording tables at a constant speed of 80 feet per minute. The motor has connected to it a variable winding up mechanism which rolls up the tape compactly after it has passed through the drawing rolls. The marking tables are arranged in an arc so that the tape is drawn tightly over each one, presenting at each a perfectly smooth writing surface.

Upon the standards which support the tables are placed vertically adjustable recorders. These recorders consist of electro magnets connected in series with telegraph circuits, the signals of which it is desired to record. Each of the armatures of these magnets carries a small steel writing wheel that is constantly fed with ink by a layer felt inking wheel also carried by the armature.

It is obvious that with the tape running over the tables constantly the recorders will indicate upon it all signals that are transmitted on the various circuits connected to the apparatus.

The tape supply consists of a ten pound roll of paper eighteen inches in diameter, a strip that runs for twenty-five hours continuously. Elaborate arrangements are made to control this strip so as to maintain a constant speed, this being a prime requisite in an apparatus in which errors in manual transmission are to be detected.

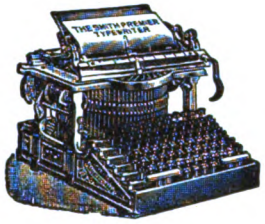
The supply tape is braked by a device which reduces the braking pressure automatically as the leverage pull on the tape decreases with its size. Lint is removed from the surface of the tape by camels' hair brushes and surplus ink is removed from the tape before it passes through the drawing rolls, by means of revolving blotters. These blotters, and in fact the entire series of rollers over which the tape has to pass, from the supply wheel to the winding up reel, are on ball bearings, to reduce friction and eliminate speed variation. Any number of circuits can be connected to one machine. The responsibility of errors, involving in the aggregate the loss of thousands of dollars, have been steadily traced where this apparatus has been in use.

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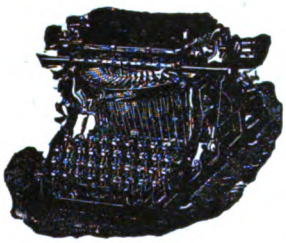
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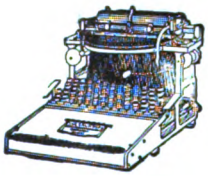


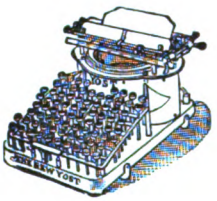
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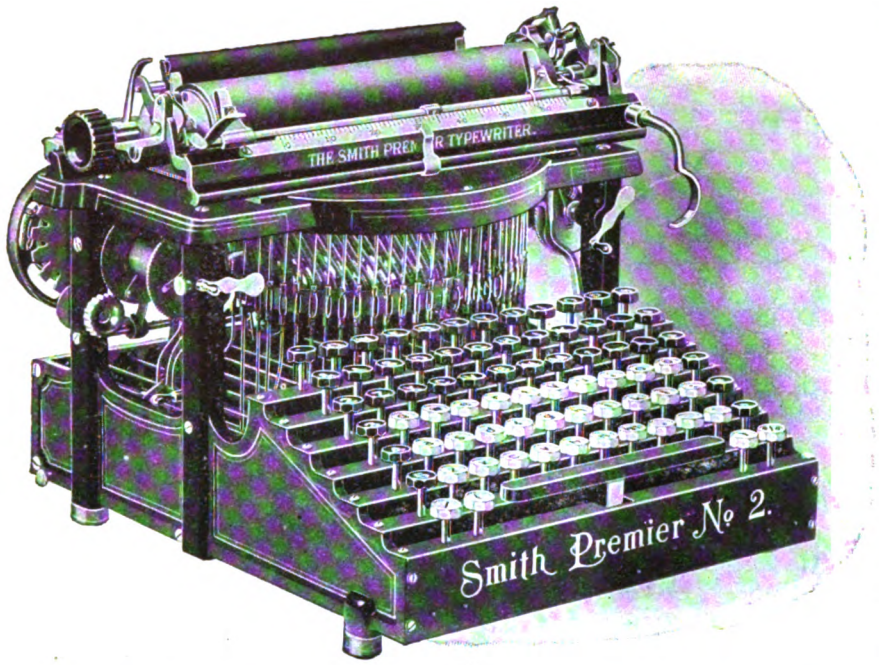
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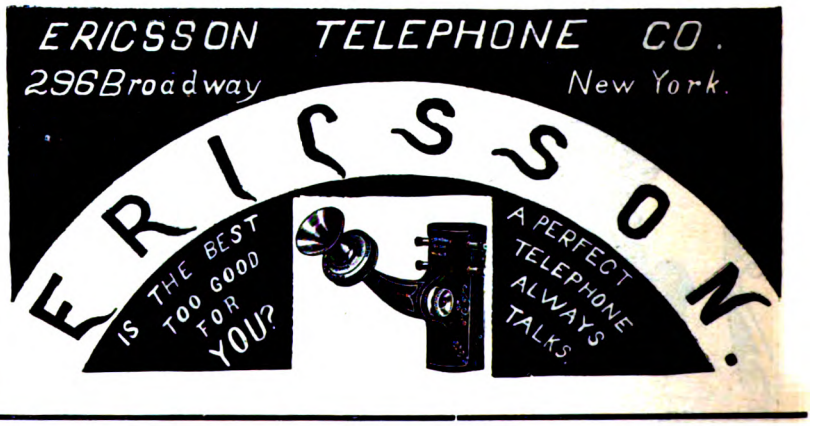
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NEW YORK, September 16, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

A Matter to Consider.

The attempted murder of the President of the United States, which so lately horrified the civilized world, constitutes a foul blot upon this land of freedom. The bullet evidently was not aimed at Mr. McKinley as an individual simply, but rather at the executive head of a great nation, because in him was exemplified the governmental idea, with which anarchism is not in sympathy. The shooting furnishes an episode, graphic and acute, calculated to excite profound reflection as to the underlying causes that led to the action of the scoundrel who perpetrated the hideous deed. It calls for the exercise of wise legislation that shall result in the enactment of laws which, in their operation, shall effectually reach, eradicate and stamp out, wherever found, the treason to humanity and disloyalty to government, alien in its origin, that has taken root and found accursed expression in this country by certain persons of foreign birth, or whose immediate ancestry is exotic.

The liberty of these hospitable shores, of speech and of action thereon, have been mistaken in their meaning and ideals, and degraded by false interpretation into unrestricted license. Emanating from low conditions of birth and surroundings, influenced by ignorance and baseness, fostered in the saloon and nurtured by idleness, it is a shame and a disgrace that this nation should be terrorized, threatened or disturbed by the ravings and outbreaks of anarchism. The demand that has sternly gone forth made by an outraged people, that anarchy in this country must be cleared from its midst, must be heeded. More than that, it must be kept out, and emigration laws to this end must be revised, made more strict and be more faithfully administered. America should no longer tolerate the swarming to its shores of the vast and unregenerate scum of Europe. The undesirable should be carefully winnowed from the desirable. Our tariff laws are designed to protect us commercially; emigrations laws should protect us in our moral and political welfare.

The situation that confronts the American people in this regard is most serious and rises far above the level of partisan politics; it demands the exercise of an energetic and lofty patriotism that shall unite the intelligence and thrift of the country in a common cause against the most diabolical ideas and festering unrest of modern times.

The Juvenile Operator Again.

Once more we are called upon to make mention of a remarkable young lady, one Miss Jessie Johnson, age nine years, who, it is claimed, is an expert telegrapher, and doing excellent work in the town in which she resides. Almost every week we receive similar information. It looks to us as though the cradle is being robbed in order to establish juvenile telegraph records. There can be no doubt about the "expert" work performed by these child operators. Their "mature" judgment, no doubt, comes to their relief when they are called upon to transmit the average newspaper man's copy, or decipher the poor Morse which is frequently heard on many telegraph circuits.

The Western Union Telegraph Company has purchased the Pecos Valley Telegraph Line, running from Amarillo, N. M., that State, to Pecos City.

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International Telegraph Conference.

The International Telegraph Conference will meet in London, England, on February 10, 1902. This is the conference that was to have been held at London in the spring of this year, but which was postponed on account of the death of Queen Victoria. The Telegraph Conference is made up of delegates representing all the countries of the world which control and operate their own telegraphs.

These conferences take place every five years, and have been held in turn in the principal European capitals, as follows: Paris, 1865; Vienna, 1868; Rome, 1871-72 (at which the cable companies were first represented); St. Petersburg, 1875; London, 1879; Berlin, 1885; Paris, 1890; Budapest, 1896. The delegates include representatives of nearly all the government administrations in the world which work telegraph lines, as well as of all the companies working cables and land lines. The latter are allowed to speak, but not to vote.

The object of the Conference is to promulgate from time to time service regulations for the efficient working of international telegraphy, the adjustment of accounts, tariffs, etc. The director-general of telegraphs of the country in which the Conference is held presides over its deliberations, and matters of detail, together with the framing of the rules, are delegated to two commissions, one dealing with all tariff matters and the other with the rules for working. All the decisions of the commissioners are, however, subject to confirmation by the full Conference.

The International Telegraph Conference now includes almost all of the countries of the world, the only exceptions being China, the United States and Canada. It is understood that China has agreed to join the London Conference. In the United States and Canada the telegraph companies are private corporations, and are, therefore, not eligible to membership. They can, however, take part in the discussion, but they have no voting power.

The settlement of all questions, whether of regulations or of tariffs, so far as the latter are dealt with by the Conference, rests with the government delegates; and the companies may find their interests seriously affected by decisions in which they have no part. The Conference, as a whole, is usually very considerate to the companies, but if their legitimate interests are attacked the duty of defending them devolves very largely on the representatives of the country (if represented) to which they belong.

The Conference of Budapest would, in the ordinary course, have taken place in 1895, but it was postponed in order to coincide with the Millenary celebration. It was the eighth in succession.

The most important work before the Conference that interests the public was the consideration of what is known as the Official Vocabulary for code telegrams. This is a compilation of some twelve hundred thousand words, for use by the patrons of the cable. This vocabulary was decided upon at the Paris Conference, since which time experts have been at work at the International Telegraphic Bureau's general offices located at Berne, Switzerland, arranging words suitable for cabling purposes. The use by the public of this vocabulary was made compulsory at the Paris Conference, to go into effect on January 1, 1898. At the Budapest Conference, however, it was clearly shown that the vocabulary finished up to that period contained only 260,000 words, a number wholly inadequate for the transactions of the world's commerce. The postponement of the above date was, therefore, agreed upon in order that the number of words might be increased, with the result that the Official Vocabulary, now about finished, contains, as above stated, the vast aggregate of nearly a million and a quarter of words.

The London Conference will no doubt set a date when this finished vocabulary will finally be approved on all international lines, when, of course, it will then become binding to all concerned.

Erastus Wiman.

Erastus Wiman, of New York, whose name a few years ago was continually before the public as heading some gigantic commercial enterprise, and who was a prominent telegraph official, is now, at the age of seventy, a financial wreck, as well as a hopeless paralytic. His millions of money have been fritted away in various enterprises, until now he is penniless.

Erastus Wiman was a man of big ideas and tremendous energy. He exploited his ideas in letters to the papers of the country by the thousand, and in that way, as much as any other, became known from the Atlantic to the Pacific. He was born in Canada, received a country school education, went to Toronto, where he became a printer, and finally reporter on the Globe. In 1856 he entered the service of R. G. Dun & Co.'s commercial agency. In 1861 he became a partner in its New York house and subsequently its general manager. Soon after he became president of the Great Northwestern Telegraph Company of Canada, a director of the Western Union Telegraph Company and president of the Staten Island Rapid Transit Company. He succeeded in carrying through Congress the authorization of the Arthur Kill bridge, between New Jersey and Staten Island, which makes ten miles of water front in New York harbor accessible to trunk railroads, and through his influence chiefly the project of commercial union of Canada with the United States assumed public importance in the former country, and was finally adopted in 1888 as the main clause of the platform of the Canadian Liberals under the changed name of unrestricted reciprocity. He was also instrumental in 1886 in the abolition in New York State of imprisonment for debt.

Operators interested in the method of treatment of writers' cramp will find very complete information in the little booklet entitled "The Cure of Telegraphers' Paralysis," published by TELEGRAPH AGE, New York. Price 50 cents.

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The Convention of the International Municipal Electricians.

The sixth annual convention of the International Association of Municipal Electricians, which met at the International Hotel, Niagara Falls, N. Y., on Monday, Tuesday and Wednesday, September 2, 3 and 4, marks an epoch in the history of the association, and will pass into its annals as such. The affair had been extensively advertised by its energetic Executive Committee, and it drew together a large and able company of men gathered from all parts of the United States, including delegates from many points in Canada and even distant Honolulu, collectively as fine a body as ever sat together in a representative capacity of municipal electrical interests. As one looked out over the assembled convention and noted the strong faces there to be seen and listened to the broad-minded intelligence that marked all utterances, showing the practical and comprehensive grasp of the subjects in hand which the members had met to present and discuss, the impression gained became profound in the belief that the welfare of our cities and towns, electrically considered, was, as a whole, in the hands of highly efficient officials.

Morris W. Mead, the president of the association, called the meeting to order at 2 P. M. on Monday, September 2, nearly 150 members being present, besides a number of ladies. The Rev. A. S. Bacon offered the opening prayer, following which Mayor M. B. Butler delivered the address of welcome. He referred to the great power development and how closely allied to it were the interests of members of the association in its application to general utility. Mayor Butler's remarks explained clearly many interesting features of the power developments, and he told how Niagara would soon have 200,000 developed horse power. He welcomed the delegation and gave them the freedom of the city.

Captain William Brophy, of Boston, responded to the Mayor's address in behalf of the association.

President Mead referred to the excellent work of M. J. Donohue, chairman of the Executive Committee, and Mr. Donohue, who is city electrician of Niagara Falls, and an old-time telegrapher, was called before the convention. He made a brief speech.

The address of President Mead was then delivered. Its import was that the members were there for business. His remarks, which were of a thoughtful character, contained many excellent suggestions, and were replete with valuable information. He believes in progressive electricity and desired every member to keep fully abreast with the times.

When President Mead finished his address, which was listened to with close attention, Frank C. Mason, of Brooklyn, stepped to the front, and, on behalf of the association, presented Morris W. Mead, Jr., the latest member of the Mead household, with a solitaire diamond ring and a Niagara souvenir spoon. Three cheers were given for Master Mead, and he was made an adopted son of the association.

Master Mead, it will be remembered, was born at Pittsburg, Pa., about the time of the previous meeting of the association a year ago in that city, and the compliment paid to the young man may be regarded as a sequel to a similar action performed at Wilmington, Del., when the little daughter of Mr. W. H. Thompson, of Richmond, Va., was elected as the adopted daughter of the association, she having been born in 1899 while the convention was in session at Nashville, Tenn.

Various letters and invitations were read, and then Mr. W. Y. Ellett, of Elmira, N. Y., was appointed sergeant-at-arms. W. M. Petty, superintendent of telegraph of the Rutherford, N. J., fire department, read a paper on "The Protection of Fire and Police Telegraph Wires from High Tension Currents and Lightning." He thought the term "lightning arrester" was a misnomer, the apparatus should more properly be known as a "diverter." He also advised the abandonment, except for testing purposes, of the ground wire now found in almost general use in the fire alarm boxes.

Mr. Petty's paper was warmly discussed by all the members, the debate consuming the entire remainder of the day's session.

Before adjournment, however, President Mead announced that Friday, September 6, had been bulletined as Municipal Electrician Day by the managers of the Pan-American Exposition at Buffalo.

During the session the ladies of the party were entertained by a local committee by a carriage drive through the park, a visit to the Natural Food Conservatory and other points of interest. In the evening there was a ride down the gorge electric road to the Whirlpool Rapids and return. An electric searchlight was attached to the rear car, lighting up the entire river and gorge. This feature had been arranged especially for the association and its friends, and the scenic effects produced were very beautiful.

The convention reassembled on Tuesday morning at 9.30. Mr. Guy Owen, a delegate from Honolulu, Sandwich Islands, was introduced. He stated that he would be glad to explain the fire alarm system in use in Honolulu to any of the members.

Mr. H. W. Pope, general manager of the Bell Telephone Company of Buffalo, N. Y., was next introduced, and he addressed the convention at some length. Mr. Pope in his preliminary remarks mentioned the fact that in 1870 he called a convention of American district telegraph superintendents, which included the fire alarm people of those days. He explained the availability of the telephone in fire and police telegraph service, and stated that the company, of which he was manager, had a record of giving local telephone connection in the average time of three seconds.

In the discussion that followed F. C. Mason, of Brooklyn, described his telephone system, which, he said, was a very efficient one, and gave general satisfaction to all of the city departments.

Mr. H. W. Pope was voted the thanks of the

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association for his address, and was elected an honorary member of the organization. It was decided that a certificate of membership should be issued to all members, and the matter was referred to the Executive Committee. The report of the Committee on Statistics was next received, and the committee was ordered to continue its work and to report further at the next convention.

Next in the order of exercises was a paper entitled "Municipal Control vs. Municipal Ownership," which was read by the author, E. F. Schurig, city electrician of Omaha, Neb. Mr. Schurig in summing up his argument expressed himself as not in favor of municipal ownership, but approving municipal control. This paper was freely discussed, together with the paper following, written and read by Capt. William Brophy, of Boston, on "Inadvisability of Placing High and Low Potential Wires Through the Same Series of Conduits or Through the Same Manholes."

The thanks of the convention were tendered to Capt. Brophy for his admirable paper.

Secretary Frank P. Foster, then read a paper entitled "Improved Storage Battery for Municipal Purposes," contributed by J. W. Aydon, of Wilmington, Del.

Mr. H. C. Bundy, of Watertown, N. Y., explained the make-up of his storage battery, which has given good satisfaction for several years past.

At the afternoon session Secretary Foster read a paper from the pen of Mr. P. H. Trout, Jr., of Lynchburg, Va., on the "Need and Value of a Set of Rules for Outside Construction."

After adjournment at 4 P. M. the entire convention party enjoyed a trip on the steamer Maid of the Mist, obtaining a fine view therefrom of the Falls. In the evening a dance was had at the International Hotel, an entertainment which was thoroughly appreciated by those who took part. Alexander Henderson, of New York, proved himself to be a skilful floor director on the occasion.

On Wednesday, September 5, the meeting was called to order at 8.30 A. M. by President Mead who introduced P. H. Alexander, of New York. Mr. Alexander read an interesting paper on "Magnetic Electric Car Brakes." This received the close attention of all present, and a vote of thanks was given to the author for his contribution.

Dr. L. E. Niles, president of the Magneto Electric Company of New York, was introduced and asked to explain his magneto system for fire and police telegraph. He described the new system, which is operated by magnetos instead of by gravity batteries, and gave illustrations of what had been accomplished in the fire alarm work up to the present time. The discussion following his remarks became somewhat animated, and it was brought to a close by the appointment of a committee of five to examine and report upon the magneto system at the next meeting of the association. This committee consists of F. C. Mason, of Brooklyn, N. Y.; R. E. Moran, of Memphis, Tenn.; Capt. Wm. Brophy, of Boston, Mass.; E. F. Schurig, of Omaha, Neb., and J. Murphy, of Cleveland, O.

Secretary Foster's report was then read, and it proved to be a very satisfactory document.

The report of the treasurer, Adam Bosch, of Newark, N. J., showed a cash balance on hand of $315.50.

Upon motion of Capt. Brophy it was decided that hereafter all papers to be read at conventions must be distributed by the secretary among the members at least thirty days in advance of such meeting.

Richmond, Va., was selected as the next place of meeting, the date thereof to be named by the Executive Committee.

The following officers were then chosen for the ensuing year:

A. S. Hatch, president, of Detroit, Mich.

W. M. Petty, first vice-president, of Rutherford, N. J.

A. C. Farrand, second vice-president, of Atlantic City, N. J.

Wm. Crane, third vice-president, of Erie, Pa.

Wm. A. Barnes, fourth vice-president, of Bridgeport, Conn.

F. P. Foster, secretary, of Corning, N. Y.

Adam Bosch, treasurer, of Newark, N. J.

Executive Committee—W. H. Thompson, of Richmond, Va.; M. W. Mead, of Pittsburg, Pa.; Capt. Wm. Brophy, of Boston, Mass.; J. W. Aydon, of Wilmington, Del.; F. G. Boyd, of Baltimore, Md.; F. C. Mason, of Brooklyn, N. Y.; W. Y. Ellett, of Elmira, N. Y.; G. F. MacDonald, of Ottawa, Ont.; M. G. Canfield, of Grand Rapids, Mich.

Finance Committee—M. J. Donohue, of Niagara Falls, N. Y.; J. F. Zeluff, of Paterson, N. J.; Jeremiah Murphy, of Cleveland, O.; Elmer Loomis, of Allegheny, Pa.; Ion Simons, of Charleston, S. C.

Capt. Brophy, in a few well-chosen remarks, eulogized the efficient work performed by Frank C. Mason, of Brooklyn, in organizing the Association of Municipal Electricians, stating that he had devoted the greater portion of his leisure time in the past seven years in the interest of the organization. As the association had adopted a daughter and a son, Mr. Mason should accordingly be accepted and known as the father of the association. By a unanimous vote of those present Mr. Mason was elected a life member of the association, a well-deserved compliment for faithful and enthusiastic service, and which frees him from the payment of further dues.

After all this had transpired Secretary Foster stated it was evident that Mr. Mason had received a hint as to what was going on in his behalf, for he had forestalled his proposed exemption from the payment of future dues by paying the same himself for five years in advance. This statement was received with much merriment.

The new members elected during the meeting included D. W. Dugdale, of Kearney, N. J.; J. A. Seely, of Troy, N. Y.; Thomas Coyne, of Washington, Pa.; Charles H. Crampton, of Bay City, Mich.; Frank E. Pierson, of Morristown, N. J.; William M. Habershaw, of New York; H. B. Kirkland, of Chelsea, Mass.; J. F. Jacobs, of Pekin, Ill.; Charles E. Bryce, of Homestead, Pa.; John Bell, of New

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Rochelle, N. Y.; J. W. Cupps, of Pittsburg, Pa.; Frank Richardson, of Boston, Mass.; T. K. Harding, of Bay City, Mich.; J. F. Jaeckell, of Pekin, Ill.; A. S. Hatch, of Detroit, Mich., and Dr. L. E. Niles, of New York.

The convention adjourned, to meet at Richmond, Va., next year.

The social features of Wednesday afternoon's entertainment were a trolley ride to the various power houses, visits to the Carborundum works and to the Natural Food Company's building. Thursday and Friday were devoted to sightseeing at the Pan-American Exposition, at Buffalo.

Among those present were: Will. Y. Ellett, of Elmira, N. Y.; A. C. Farrand and wife, Atlantic City, N. J.; M. G. Canfield and wife, Grand Rapids, Mich.; Frank C. Mason, Brooklyn, N. Y.; E. W. Dugdale, Kearney, N. J.; Frank E. Pierson and wife, Morristown, N. J.; J. W. Cupps, Pittsburg, Pa.; M. J. Donohue, Niagara Falls, N. Y.; M. W. Mead and wife, Pittsburg, Pa.; Chas. Downs, Altoona, Pa.; F. P. Foster and wife, Corning, N. Y.; L. M. Tillotson and wife, Yonkers, N. Y.; Wm. S. Hoffman and wife, Reading, Pa.; W. M. Petty, Rutherford, N. J.; J. F. Zeluff, Paterson, N. J.; Chas. Greenwald and wife, New Brunswick, N. J.; Adam Bosch and wife, Newark, N. J.; J. W. Aydon and wife, Wilmington, Del.; Wm. A. Barnes and wife, Bridgeport, Conn.: Capt. Wm. Brophy, Boston, Mass.; F. G. Boyd, Baltimore, Md.; W. S. Logue, Chicago, Ill.; J. F. Jaeckel, Pekin, Ill.; E. G. Loomis, Allegheny, Pa.; Wm. Crane and wife, Erie, Pa.; W. H. Thompson, Richmond, Va.; H. L. Angloch and wife, Pittsburg, Pa.; A. P. Eckert, New York; H. B. Kirkland, Chelsea, Mass.; Alex. Henderson, New York; Gen. C. H. Barney, wife and daughter, New York; Chas. Crampton, Bay City, Mich.; E. F. Schurig, Omaha, Neb.; W. J. Gardner, Detroit, Mich.; H. Smith and wife, Buffalo, N. Y.; W. M. Habershaw and wife, New York; Thos. Coyne, Washington, Pa.; O. E. Dunlap, Niagara Falls, N. Y.; G. F. Breitenstein and wife, Utica, N. Y.; Guy Owens, Honolulu, Sandwich Islands; G. F. MacDonald, Ottawa, Ont.; Ion Simons, Charleston, S. C.; H. D. Reynolds, Buffalo, N. Y.; H. C. Bundy, Watertown, N. Y.; F. N. Ferrin, Boston, Mass.; J. A. Seely, Troy, N. Y.; J. Jones, Jr., New York; T. Torry and wife, New York; E. L. Brown, Beaver, Pa.; C. F. Hauth, Niagara Falls, N. Y.; F. H. Wilson, Jamestown, N. Y.; P. H. Alexander, New York; R. E. Moran, Memphis, Tenn.; W. C. Banks, New York; Dr. L. E. Niles, New York; G. T. Manson, New York; J. S. Craig, Toronto, Ont.; Wm. Martin, A. F. Palmer, S. C. Jamison, J. C. Hill, M. M. Marcy, J. H. Dorrington, Chas. H. Pryor, Thos. Harmore and wife, K. Morgan, T. A. Howeler, and F. A. Cupps, Pittsburg, Pa.; Jessie B. Williams, Miss I. D. Fenley, H. F. Woodburn, B. S. Barnard, T. E. Wood, F. A. Williams, F. S. Palmer, F. W. Harrington, D. H. Darling, E. S. Downs, E. M. White, Mrs. J. H. Morton and daughter, W. R. Drummond, W. de W. Russell, P. L. Wilbur, and J. H. Hallberg, New York; E. R. Webb, H. W. Pope, Buffalo, N. Y.; Gray W. Johnston, Memphis, Tenn.; D. F. Lucas and wife, and Mrs. A. M. Browning, Brooklyn, N. Y.; Thomas O'Reilly, E. D. Very, G. H. Swan, A. J. Hamlin, W. J. Morton, Geo. H. Anthony, S. A. Greenwood, W. C. Barber, W. Y. Green and wife, B. W. Seuppril, and E. F. Omsted, Niagara Falls, N. Y.; Wray Winnett, Washington, Pa.; A. S. Hatch and wife, Detroit, Mich.; Henry March, Mrs. Ellett Murch and daughter, and J. D. Longmire, Allegheny, Pa.; Rose Knodloch, E. T. Kirkpatrick, and Thos. G. Grier, Chicago, Ill.; Kittie Rhodes, Port Byron, N. Y.; James Seanny, Ottawa, Ont.; J. W. Davis, Newark, N. J.; John Cavetti, and F. O. Snow, Bridgeport, Conn.; G. R. Downs, Altoona, Pa.; Frank Ingraham, Providence, R. I.; L. E. Meader, Oneida, N. Y.; G. W. Taylor, Richmond, Va.; Jeremiah Murphy and wife, Cleveland, O.; Arthur J. Bell, New Rochelle, N. Y.; Geo. Dickens and wife, A. D. Stevens and wife, R. O. Lilly and wife, Corning, N. Y.; C. A. Rolfe, Adrian, Mich.

THE EXHIBITS AND EXHIBITORS.

A room was set apart for exhibits, and there quite a display was made of appropriate fire and police telegraph apparatus.

The Okonite Company, of New York, was represented by George T. Manson.

J. Jones & Sons, of New York, were represented by Mr. J. Jones, and their exhibit was an elaborate one.

The Montauk Fire Detecting Wire Co., of New York, was represented by Mr. F. S. Palmer, of the New York office. An interesting exhibit was given showing the practical operation of this system in affording prompt fire alarm. The fire that was detected was effectually suppressed by the application of Kilfyre. This exhibition was given in front of the hotel and was witnessed by several hundred people.

The Circular Loom Co., of Boston, Mass., was represented by F. N. Ferrin.

The Edison Manufacturing Co., of Orange, N. J., was represented by W. S. Logue, of Chicago, the general manager of the Edison interests at that point.

The Gordon Battery Co., of New York, was represented by W. C. Banks.

The United States Battery Co., of New York.

The Safety Insulated Wire and Cable Co., of New York, was represented by A. P. Eckert, who distributed leather covered memorandum books.

The Gamewell Fire Alarm Telegraph Co., of New York, was represented by T. Torry, who gave away as a souvenir a silver match box of unique design.

The Carborundum Company, of Niagara Falls, distributed pocket knife sharpeners.

The Sprague Electric Co., of New York, was represented by Alexander Henderson. The conduit exhibit was a very complete one and highly interesting. Greenfield flexible steel conduits and steel armored conductors were shown, and samples of these goods were distributed among the members. A large sample board originally built for the Pan-American Exposition attracted a good deal of attention. Mr. Henderson was the first chief of

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the Electrical Inspection Bureau of the Fire Department of New York city, and is extremely popular with municipal electricians everywhere.

Mr. Louis W. Miller, superintendent of fire alarm telegraph at Rochester, N. Y., explained the merits of the Miller cut-out, which absolutely cuts out when not in use fire and police telegraph boxes. Mr. Miller's device is in use in many cities, and he is at present installing a full set of these instruments at Syracuse, N. Y.

NOTES.

About the time the convention adjourned Mr. W. Y. Ellett, superintendent of fire alarm telegraph at Elmira, N. Y., received a telegram announcing that the Court of Appeals had rendered a decision restoring him to the superintendency from which he had been suspended since last February by newly appointed fire commissioners. This great victory for Mr. Ellett caused that gentleman to receive the hearty congratulations of every member of the association who were glad to learn that the municipal telegraph system of Elmira was to remain in the hands of this very competent official.

Mr. Frank P. Foster makes an ideal secretary of the association. His faithful work was apparent on every hand, and he had a courteous answer for every question.

After the selection of Richmond, Va., as the next place of meeting, Delegate W. H. Thompson, of that city, was kept busy receiving congratulations and telegraphing the glad tidings to the Richmond city officials.

Look Out for This Man.

EditorTELEGRAPH AGE:

Kindly do me the favor to warn your readers against an impostor representing himself to be Frank E. Hood, assistant superintendent of telegraph of the Mexican Central Railway Company. The man is not in this company's employ and there is no such official as assistant superintendent of telegraph. When last heard of he was operating in East Texas, where he had been successful in victimizing a number of people for various amounts. I enclose a sample of the business card he is using.

Yours very truly,

G. O. PERKINS,
Superintendent Telegraph.

Compañia Limitada del Ferrocarril,
Central Mexicano.
Mexico, September 2, 1901.

No Looking Glasses During Business Hours.

The controller of the central telegraph office in London, Eng., has ordered the closing, during working hours, of the dressing rooms where looking glasses are kept. To the indignant petition of the hundreds of women telegraphers against what they called his tyranny, the controller replied by accusing them of squandering the time of the government. So the girls have to take messages for eight hours without having a look at themselves.

You can't afford to be without TELEGRAPH AGE.

Col. Clowry on a Young Man's Business Chances.

I have received your letter asking for my views in reference to the young man's chances of success in commercial life and do not hesitate to say, that, in my opinion, the chances of success in commercial business, for the right sort of young men, have never been so good as at the present time; provided that the young men are well educated, honest, industrious and faithful, and not handicapped by mental or physical defects, or by *a full university course of education, and enter business early in life so that they may be molded to their work, and in line for promotion when opportunities present themselves.

To be successful, the young man should be not only industrious and faithful but always willing and anxious to perform more service than is allotted to him; to guard and watch his employer's interests at all times, regardless of stipulated hours—whether the employer is the United States Government, a large corporation, a firm, or an individual, and the service should be performed not only intelligently, but modestly and unostentatiously, so as not to excite the ill-will of other employees. He should, if possible, acquire the habit of performing extra work for his employer, visiting his place of occupation at night or on Sunday—if consistent with his religious convictions. He should take a large view of the whole business of his employer, and become familiar with the details of the different departments. He should be a constant student and reader, when not at work, giving special attention to biography, travels, history and geography. He should know what great and successful men have really accomplished, rather than what some imaginative novelist would have them do. He should read such works as the journals of Lewis and Clark on their expedition across the continent to the Pacific coast of the United States, in 1803, and when discouraged or disheartened, remember the sufferings and vicissitudes encountered by them. He should read "John Halifax, Gentleman," and not only never forget to be a gentleman, without being prudish, but endeavor to associate with gentlemen and ladies in social life, and cultivate the acquaintance of persons of more experience and culture than himself.

It is a great mistake for a young man to think that his efforts to be efficient and to perform more work than is set apart for him will not be noticed by his employers or superior officers. The appreciation of such service may seem tardy, but is almost sure to come, and then it will only be a question of time when his services will become indispensable, and his success certain.—Col. R. C. Clowry, vice-president and general superintendent of the Western Union Telegraph Company, Chicago, Ill., in The Conservative.

TELEGRAPH AGE should go regularly to every one interested in the telegraph.

*I think that a full university course has a tendency to unfit young men for the rough struggles, incident to the small beginnings of a commercial business career.

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The Skagway-Juneau Cable.

The laying of the marine cable from Skagway to Juneau has been completed and the latter town now forms one of the points on the route which will shortly be in direct telegraphic communication with Seattle and thence with the entire United States. The actual completion of the laying of this cable was accomplished at noon, August 23, by the force of experienced men on board the steamer Lakme, which sailed from Seattle on August 15. Allowing nearly five days, which were occupied in the journey to Skagway, the actual laying of the cable consumed less than three days.

The details of the laying of this cable are interesting. On August 12 the cable arrived in Seattle over the Great Northern Railroad. It was then loaded into the Lakme, whose hold was specially prepared for its reception. It is said to be the longest telegraph cable manufactured and laid by any American manufacturer and the largest cable within United States territory.

The Lakme arrived at Skagway on August 20 at 2.30 P. M., Skagway time, and the landing of the shore end of the cable was completed two hours later. By the establishment of this end on the shore telegraphic communication between the ship and the shore was effected. At six o'clock the next morning the actual work of laying the cable began. The conditions were declared most favorable, there being no wind prevailing, and the water being perfectly smooth. By means of the batteries on the ship connected with the cable, communication was kept up with Skagway, and as the laying of the cable progressed the reports were duly posted for the benefit of the interested crowd on shore, gathered around the bulletin board. Exceptionally good time was made in the work, a uniform speed of five miles per hour being maintained. No accident of any sort interfered with the success of the operation.

At 9.30 P. M. that night the fog thickened to an extent rendering it necessary to anchor until daylight. The anchor was dropped off Shelter Island in ten and one-half fathoms of water, eighty-four miles of cable having been laid in sixteen hours. Work began again early next morning, and at 3 P. M. of that day anchor was dropped three miles from Juneau, in order that the shore end might be spliced. The shore end of the cable being of double armor, it is much heavier than the main cable, and weighs 12,000 pounds to the mile. The splicing was completed in four and a half hours, and the laying was again resumed to within one-half of a mile of Juneau, when the anchor was again dropped for the night.

Early in the morning following preparations were made to land the shore end of the cable to connect with the land line built by the signal corps to the regular office. A line was first sent ashore to be passed through a snatch block attached to a tree. One end of this line was attached to the cable and the other end to a winch on the vessel. The end of the cable was passed over one of the ship's boats, and the boat was towed ashore by power from the winch. After all the slack was drawn in the cable was anchored to the shore by means of chains. Telegraph instruments, batteries and instruments for measuring cables were at once landed and connections were again established with Skagway. By 12.30 o'clock instruments for measuring installation resistance, conductor resistance and capacity of the current were completed, and all was found to be in perfect order. The cable was then attached to the end of the telegraph line and telegraphic communication between Skagway and Juneau was an accomplished fact.

At Skagway, Major Glassford, of the United States Signal Corps, who performed the Government's land share of the work, joined the cable corps and participated in the work described. The cable is primarily laid for the use of the United States Signal Corps, but by an act of Congress its use is permitted to the public at the rate of .7 cents per word for commercial messages and 4 cents per word for press dispatches. The total cable equipment weighed over 300 tons, there being over 124 miles of cable coiled in the hold of the Lakme. When coiled the cable measured thirty feet in diameter, six feet ten inches high and contained seventy-five layers. In loading the cable great care was taken that the cable coils should be laid thoroughly even and right handed from the outer edge of the circle to the center. Laths were placed between each layer of the cable.

The process of laying was a delicate one. The cable was first passed through a large lead suspended directly over the center of the cable coil. The cable then passed four times around an iron drum and then through a snatch block fastened to the foreboom. The boom was rigged at right angles over the port side in order to carry the cable clear of the ship's side and the propeller. To prevent the cable from running out faster than the speed of the vessel a friction brake was attached to the iron drum. The average speed observed in the laying was five statute miles per hour. This was said to be unusually fast work, in view of the depth of the water, the rugged bottom, especially within twenty miles of Skagway, and the facilities afforded by the improvised steamer. The Lakme was not a cable ship and the hold and deck had to be changed in several particulars to adapt her to the purposes intended.

The cable, which is fifteen-sixteenths of an inch in diameter, is composed of seven copper wires covered with a coating of pure Para rubber. Outside of this kerite is added to a diameter of nine-thirty-seconds of an inch. Two wrappings of rubber tape, two of jute, a covering of No. 9 steel armor wire and two wrappings of a jute covered with tar and soapstone form the consecutive outer coverings of the cable. On account of the resulting friction and strain each shore end is covered for two miles with eighteen strands of No. 6 B. & S. steel armor wires and two wrappings of jute, tar and soapstone. The shore ends of the cable are one and five-eighths inches in diameter.

The manufacturer and contractor of the material is W. R. Brixey, of New York, his representative and superintendent, George F. Porter, having supervised the operation of laying. The cost of the operation is placed at $71,000. The extraordinary close

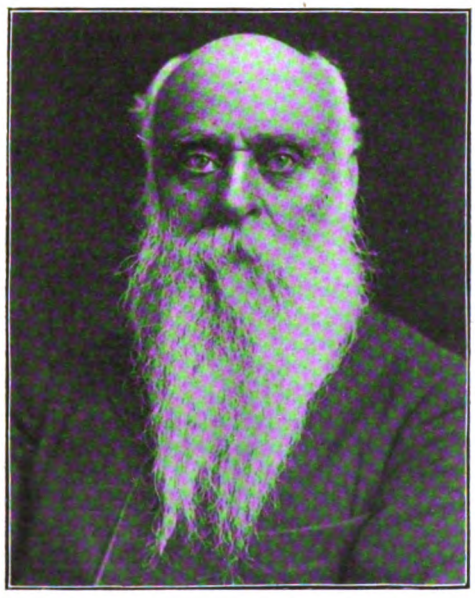
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calculation indulged in is apparent from the fact that there remained but 1,800 feet of cable to spare after the laying was completed.

While not officially engaged, great assistance of a practical kind was afforded the men engaged in the work by J. G. Blake, manager of the Postal Telegraph-Cable Company, of Seattle, Wash. Alexander Kline, of the Western Union Telegraph Company, of New York, had charge of the actual work of cable laying. University students who were with the party also rendered material assistance in minor matters.

John Horn.

John Horn, an engraving of whom is herewith presented, was born in Montreal, Que., in 1837. Early in life, becoming interested in the telegraph, he found employment with the Montreal Telegraph Company, in that city. This was in 1853. Four years later, in 1857, he removed to New York,



JOHN HORN.

where he became identified with the American Telegraph Company. Afterwards he entered the service of the Western Union Telegraph Company and for a period was manager of the Stock Exchange office of that company. Returning to Canada he next engaged in the Canadian Military Telegraph service in the Northwest. For many years past Mr. Horn has been a resident of his native city of Montreal. He is the possessor of one of the finest collections of early American and Canadian history of the telegraph, of which he has been a diligent student. This is embraced in five large volumes and includes many interesting original letters and portraits.

We always notice that the operator whose favorite hymn is "I Would Not Live Always," invariably works a way wire with fifty offices on it.

LETTERS FROM OUR AGENTS.

LONDON (ENGLAND) NOTES.

Among the recent telegraph visitors from America in this city were Mr. Arthur C. Frost, superintendent of the Direct United States Cable Company, New York; Mr. William B. Gill, superintendent of the Western Union Telegraph Company, Philadelphia, Pa., who intends to visit the Continent before his return to America; Mr. George G. Ward, vice-president and general manager of the Commercial Cable Company, New York; Mr. John W. Mackay, president, and Mr. A. Beck, secretary, of the Commercial Cable Company, New York.

Mr. D. Le Rougetel, superintendent of the Western Union Telegraph Company, this city, is away on a month's vacation.

CHICAGO, ILL., POSTAL.

The Postal Company's Chicago office, located on the thirteenth floor of the Stock Exchange Building, can justly lay claim to being one of the best equipped telegraph offices of the Postal Company. A new and very complete switchboard has replaced the old one and what is known as the Skirrow pin-jack and transfer system has been installed. The work of installation has been going on since about May 1 under the supervision of S. F. Jones and J. H. Hess, of the electrical department of the Postal Company in New York. The Skirrow transfer system does away with the old style jack and card running from one board or section to another, which has so long been a means of delay and trouble to the wire chiefs. With the Skirrow system any combination of transfers, from one board to another, from one table or set to others, outside loops to the board of trade, broker's offices, newspaper loops, leased wire, branch office loops, etc., can be instantly made and with practically no chance of a "mix-up." Another very great improvement and aid is a system of indicator and bell taking in all leased wire and broker offices. When the bell rings a blind falls, showing instantly what wire the wire chief is wanted on.

The work of installing this Skirrow system has been quite a remarkable feat when it is learned that every wire into the switchboard has been changed, sections of the board taken out one at a time, and all this with practically no interference to business. The Skirrow system has also been installed in the Philadelphia, Indianapolis and Cleveland offices of the Postal Company, Mr. Jones and his assistants having just completed the work at the latter office before coming to Chicago.

PHILADELPHIA, PA., WESTERN UNION.

Charles T. Seibert, a well known operator, and formerly manager of the Camden and New Brunswick, N. J., offices, died of consumption, from which for several years he had been an invalid, on September 5. He was a well-beloved member of the fraternity. He leaves a wife who is also an operator in this office. His funeral was largely attended by members of the force.

The attempted murder of President McKinley caused a large force of operators to be held in read-

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iness here to provide against all contingencies. In response to an appeal for assistance from the Buffalo office, where the wires were taxed to the utmost, Messrs. Durnin, R. P. Stoddard, James McGrority, and J. H. Daily were sent on.

Messrs. H. A. Emanuel, T. W. Bair, J. H. Abdill, and M. J. Madden were sent to Northfield to handle press matter during the National Golf Tournament which was played there.

Mr. Harry Paulhamus is the proud father of a girl. Mrs. Paulhamus (nee Miss Ida Godfrey) is well known here, and many friends extend congratulations.

CLEVELAND, O., WESTERN UNION.

Mr. Samuel Scharf is the happy father of a son.

Several of the fraternity visited the Pan-American at Buffalo during the past two weeks. Among them were Messrs. G. E. Koplin and Gales. All report a good time.

LOUISVILLE, KY., POSTAL.

Chief Operator, O. W. Krider, resigned September 1 to accept a position with the Western Union, this city. The boys presented him with a handsome shaving set, and expressed many regrets upon his departure.

Night Chief Operator L. W. Janes, has been appointed to fill the vacancy made by Mr. Krider's resignation, with John D. Holland as assistant.

Assistant Chief Operator A. L. Fogg, has been appointed night chief.

KANSAS CITY, MO., POSTAL.

Mr. Kenefick has resigned and gone to New Orleans to work for this company. John Hall has returned from a vacation. Night Chief Charles Falk is absent on account of sickness, and G. S. Palmer is acting in his stead. Mr. Dobel, late of the Armour Packing Company's telegraph department, is now with us.

Mr. Joseph Ingram and Miss Maud Mitchell, of the city lines department, were married a few weeks ago, and the office force unites in an expression of congratulation. Mr. Tobin is off on a vacation.

SEATTLE, WASH., WESTERN UNION.

Chief Operator Chas. Baxter, has returned to work after an absence of three weeks caused by sickness.

Miss Knox was called home on account of the death of her father in Eugene, Ore.

Arrivals: W. C. Neele, F. A. Church, F. W. Bowes, W. H. Murphy, and M. Dooley.

Departures: J. McDonnell, to Northern Pacific Railroad, Helena, Mont.; C. Nutter, to Flagstaff, Arizona, and C. T. Bell, to Skagway, Alaska.

ST. LOUIS, MO., WESTERN UNION.

The Kinloch Race Track Western Union office was opened August 17, with H. Horton in charge; Thomas Phelan, Al Frey and Herman Wegerman, operators; John T. Brophil and Chas. W. Groos, race correspondents.

At Delmar we find Mr. Geo. J. Goehringer as manager, while the operators are Mark Crain, Jr., Joseph Barry and James Grady, and race correspondents, W. L. Roberts and Chas. W. Jost.

Mrs. Josie Schmitt is filling in Mr. Goehringer's position as assistant to Mr. Frank Spencer, of the way department.

Miss Marie Lacher returned recently from a month's visit to Buffalo.

Misses Mamie and Annie McLaughlin spent their vacation during July in Southern Michigan and Wisconsin.

Miss Alice Crotty passed her vacation in South Haven, Mich., the early part of August.

NEW ORLEANS, LA., WESTERN UNION.

W. H. Bauder has returned from Havana and is with the Western Union. Arthur Wemett holds the boards for a new brokers' office. Sympathy is extended to J. J. Thompson, whose mother died recently in Mobile, Ala.; and to E. W. Westerfield, a former Western Union man, but now manager for the United Fruit Co., located at Minneapolis, whose wife died on August 20.

Mrs. J. B. Mobley and daughter have been spending the summer in Alabama, and Mrs. F. W. Longmire and daughter are in Mississippi. One of the most popular local railroad and telegraph men is B. Weeks, manager of an Illinois Central Railroad office.

The Southern Pacific local office is now furnished battery from the Western Union storage plant. Mr. A. F. Wark, assisted by Messrs. Turner and Meitzley, are credited with the installation.

M. M. Lott is now with the Postal. Mr. Nogel is a late arrival from Nashville, Tenn. Messrs. E. L. Hamm and Wm. Gowland are numbered among promising young telegraphers.

Messrs. Pillow and Sevat have returned from their vacation. Mr. Ellzey, former Illinois Central manager, now with Southern Pacific, was a recent visitor.

Percy W. Morrow, a former operator for the Southern Pacific, and lately assistant city ticket agent for the Louisville and Nashville Railroad, has been promoted to the post of traveling passenger agent for Texas for the same company, with headquarters at Houston.

PHILADELPHIA, PA., POSTAL.

The terrible catastrophe which befell our nation's Chief Magistrate at the Pan-American Exposition brought with it one of those sudden rushes of business which tax the emergency facilities to their utmost. Men everywhere were pressed into service. At the newspaper offices particularly, it was a common thing for operators to remain on duty all night. Considering the depleted state of our present night force we made out very well.

The demand for good talent still exists, but it is expected by the latter part of the present month, when the summer offices will be about all closed, that the supply of operators will be greater than the demand.

The vacation season is about over. Among other fortunate ones to get away for a brief period were All-night Chief Wm. J. Poppert; Mr. Horace Holtzinger, to Ocean City; Night Wire Chief M. A. Baker, to Atlantic City; Quad Chief Chas. Dreher, to the Pan-American; Miss Nellie Hayes,

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of the city department; Harry Thompson, assistant traffic chief, enjoyed the benefits of his country home; Leo Miller, accompanied by his son, spent a few days at Niagara Falls and the Pan-American Exposition; Mr. Fred. Kohler, of the North American staff, spent his vacation at Atlantic City, and Harrisburg, Pa.

The latest arrivals include the Messrs. A. M. Moore, Wm. S. Meck, W. H. Heeps, Claude C. Figgs, J. J. Horner, H. V. Allen, J. J. McNernay, and C. W. Williams.

A played-out arm was responsible for Mr. Benj. Crawford's detention at home for several days; while a severely ulcerated tooth did the same for Mr. Geo. Plattenburg.

Departure: Geo. B. Morris.

One of the fiercest specimens of a bulled-up message we ever saw stated: "All trying to leave home left hotel at house, last heard woods homeless." The original read: "Am trying to locate him, left postal at house, last heard Woods Hole, Mass."

NEW YORK, POSTAL.

The following changes have been made among the traffic and wire department chiefs: John B. Rex, from nights to assistant to F. F. Norton, general traffic chief, days; J. H. Twyford, nights, to traffic, days, Southern Division; E. A. Coney, to the Western board; C. B. Obst, to all-night traffic. Mr. F. M. Smith, formerly of the main Postal office, Boston, Mass., has been appointed night loop chief. The sympathies of the force are with former City Chief Daniel Grogan, in the recent loss of his wife.

A. E. McKiernan, Western wire chief, and Geo. F. Randolph, leased wire chief, attended the Montreal Convention of the Old Time Telegraphers' Association. They will also visit the Pan-American Exposition at Buffalo while absent from the office. Wire Chief Edward Rankin has returned from his vacation spent at Greenwood Lake, where he added to his already well known reputation as a successful fisherman.

The attempted assassination of President McKinley caused an immense volume of business to be suddenly thrown upon this office, and which has continued unabated ever since. The day and night force are working almost continuously to keep files clear. The yacht races being near at hand will also add greatly to the already enormous business being transacted.

Miss Avis Gibney has returned to duty after an absence of two months spent in Chicago and on the Pacific coast.

Chief J. H. Twyford returned after a two weeks' tour of New York State and the Canadas, taking in the Pan-American.

NEW YORK, WESTERN UNION.

Mr. Jules Rodier, of the Executive Mansion, Washington, D. C., was a recent visitor.

Miss Minnie Garey and Mr. William McElroy, of the Wheatstone department, were married on September 4. Mr. Robert McElroy, of this office, was best man, and Miss Annie Garey, of the Buckingham department, a sister of the bride, acted as bridesmaid. There was a large attendance at the wedding from this office, and many beautiful presents were received.

On account of the pressure of business throughout the office many operators were unable to get away to attend the Old Time Telegraphers' Convention held at Montreal last week.

Mr. Charles J. Powers, of the Commercial News Department, has returned from his vacation.

The marriage of Geo. W. Stephens, of this office, son of Superintendent J. M. Stephens, of Atlanta, Ga., is announced.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left On the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all prices—sold $1.00 per week. B. L. Brannan, 195 Broadway, New York. (Adv.)

Artistic and mechanical drawing by J. B. Barrett, 195 Broadway, New York. (Adv.)

Unsatisfactory Condition of the British Telegraphs.

The London Electrician of recent date thus sums up the telegraphic situation in Great Britain:

"The Postmaster-General's annual report, just issued, for the financial year ended March 31, 1901, is unusually dreary reading, a change having come over its literary style concurrently with the retirement of Mr. Cardin, the late comptroller and accountant-general. Its general dulness is rendered perfectly doleful when the telegraph accounts are dealt with, matters in that quarter being even less satisfactory than usual. For the first time in ten years the receipts in respect of the telegraph service have fallen below the year preceding; and for the first time since the service has been worked by the State the total number of telegrams has diminished. This looks as if the revenue from that source had reached high-water mark; and as the expenditure has continued at the usual rate of augmentation, the net result is that, at this critical turning point, there is a net deficit on the year's business of £353,216—a sum which is raised to £652,104 if the annual interest due (but never paid) on the original capital outlay be added. Taking into account the fact of a general election—a fact referred to as explaining a large increase of postal business—this falling off in the telegraph branch is somewhat startling. For the five or six previous years the growth of inland telegrams year by year has been at the rate of between three and four millions; in 1900-1 there was an actual decrease of 838,162, the bulk of this being under the heading of 'London.' Scotland and the provinces show also each a falling off, the only gratifying item being the one under 'Ireland' which, happily, holds its own fairly well."

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The Montreal Meeting of The Old-Time Telegraphers' Association and The United States Military Telegraph Corps.

For the first time in twenty-one years of such assemblings, The Old-Time Telegraphers' Association, together with its coadjutor, The United States Military Telegraph Corps, celebrated an annual reunion on foreign soil, meeting in Canada at the delightful yet quaint old city of Montreal, on September 11, 12 and 13, and under the auspices of a Canadian president and vice-president. While such a meeting partook largely of the quality of novelty, as was to be expected, it was a most agreeable innovation to the usual order of things. No thought of boundary line divisions and differences in nationality existed in the minds of these casual visitors, for after all the one is but an imaginary mark, visible only on the map, and the other exists only in name, for was it not but a step just over the way, so to speak, and into the midst of a neighboring family of near relatives? What could be more natural?

This was the spirit in which the trip to the convention was undertaken and carried out by the boys from Yankeeland. Certainly the splendid hospitality shown, the kindly feelings expressed, and the thousand and one acts of generosity extended on the part of the telegraphers and others of Montreal gave evidence of kinship, proving, indeed, that "blood is thicker than water."

The meeting of The Old-Time Telegraph Association was called to order by President McFarlane on Wednesday, September 11, at 11 A. M. in the Windsor Hotel, Montreal, when Col. Wm. B. Wilson, of Philadelphia, presented the president with the badge of his office, the miniature portrait of Professor Morse, which has been worn by the presiding officer at the last six conventions.

Mayor Prefontaine, of Montreal, was then introduced. He addressed the meeting at some length and tenderly touched upon the attempted assassination of President McKinley, every citizen of Canada, he said, joining in fervent prayers for his speedy recovery. He tendered the freedom of the city to the 250 delegates present and wished the society continued prosperity. Col. Wm. B. Wilson responded in his usual interesting way, and President McFarlane made the mayor a member of the association during its stay in the city, by affixing a badge to his coat.

The minutes of the previous meeting having been printed and distributed among its members, their reading was dispensed with. The committee on the subject of a Telegraphers' Home made a lengthy report, which went into the matter very minutely. After a lengthy discussion, lasting two hours, almost all of the members taking part therein, it was unanimously resolved that a Telegraphers' Home was not practicable.

The secretary, John Brant, of New York, read his report, which stated that the society was in a very satisfactory condition. He recommended that the age limit should be changed from twenty to twenty-five years, making it necessary hereafter that applicants for membership must have been in the telegraph service twenty-five years.

A letter was read from the corporation of Montreal welcoming the association to the city.

The question of merging The Telegraphic Historical Society of North America with The Old-Time Telegraphers' Association was next taken up and unanimously agreed to and the necessary change in the title of the association was ordered.

Letters from H. P. Dwight, president and general manager of the Great North Western Telegraph Company, of Toronto, Ont., and from James Kent, general manager of the Canadian Pacific Railway Telegraph Company, and from L. B. McFarlane, superintendent of the Bell Telephone Company, of Montreal, extending the courtesies of their respective lines to the delegates, were read.

Resolutions of condolence on the death of ten members which occurred during the past twelve months, were adopted.

Salt Lake City, Utah, was selected as the next place of meeting and the following officers were then chosen: G. H. Corse, of Salt Lake City, president; Belvidere Brooks, of Denver, Col., vice-president; John Brant, of New York, secretary and treasurer. Executive Committee, L. B. McFarlane, of Montreal, Que.; H. C. Hope, of St. Paul, Minn.; H. J. Pettengill, of Boston, Mass.; J. J. Dickey, of Omaha, Neb.

The treasurer's report showed an amount of $663 on hand and a collection during the year of $820. During the year 203 new members were admitted, thus breaking the record for all previous years. The convention then adjourned.

Around the meeting room were the following names on large cardboards: Galvini, Morse, Wheatstone, Preece, Volta, Franklin, Bell, Reid.

On the large banner of the association was placed an English shield bearing an English and American flag; also on a shield "73" in large print. Around the room numerous English and American flags and shields were displayed.

The meeting of The United States Military Telegraph Corps was called to order at 8.30 P. M by Col. W. B. Wilson, of Philadelphia, the president of the society.

There is More Catarrh

in this section of the country than all other diseases put together, and until the last few years was supposed to be incurable. For a great many years doctors pronounced it a local disease, and prescribed local remedies, and by constantly failing to cure with local treatment, pronounced it incurable. Science has proven catarrh to be a constitutional disease, and therefore requires constitutional treatment. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, Ohio, is the only constitutional cure on the market. It is taken internally in doses from 10 drops to a teaspoonful. It acts directly on the blood and mucous surfaces of the system. They offer one hundred dollars for any case it fails to cure. Send for circulars and testimonials.

Address, F. J. CHENEY & CO., Toledo, O.
Sold by Druggists, 75c.
Hall's Family Pills are the best.

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The report of President Wilson was an elaborate one, reciting the work done by the society for some years past. He also dwelt at considerable length on the deaths of four prominent members during the past year, namely, Cushman K. Davis, L. D. Parker, E. M. Shape and Geo. D. Cowlam.

Salt Lake City, Utah, was selected as the next place of meeting.

President Wilson was instructed to telegraph the condolence of the society to William McKinley, President of the United States, as follows:

Hon. William McKinley, Buffalo, N. Y.:

The Society of The United States Military Telegraph Corps in annual meeting assembled, detesting the horrible crime perpetrated against your person, tender you its hearty sympathy and express the hope while uttering the prayer that you may soon be restored to health and be preserved for our country.

WM. B. WILSON, President.

Col. William B. Wilson, of Philadelphia, was elected president for the ensuing year; W. L. Ives, of New York, was chosen vice-president, and J. E. Pettit, of Chicago, was re-elected secretary and treasurer.

Mr. John Wintrup, of Philadelphia, acted as secretary of the meeting in the absence of Mr. Pettit.

The thanks of the society were voted to the mayor, the corporation of Montreal, the telegraph and telephone companies for courtesies extended.

President Wilson also received a vote of thanks for his indefatigable work performed in behalf of the society during the last five years. The convention then adjourned.

Those present were:

Albany, N. Y.—J. J. O'Connor, C. D. Hammond, Geo. C. Thompson.

Altoona, Pa.—Wm. Findlay, M.D.; W. G. Hughes and wife, C. N. Swoyer.

Asheville, N. C.—T. H. Drakeford and wife.

Bangor, Me.—P. J. Feeny and wife.

Blairville, Pa.—W. E. Richey.

Boston, Mass.—H. W. Gillespie, J. H. Connors, M. F. Maher, wife and son; J. A. McCoy and wife, W. E. Durgin and wife, C. T. Thompson and wife, C. E. Bagley and wife, G. H. Yetman and wife, Miss M. A. Walker, S. A. D. Forristall and wife, E. A. Smith, J. W. Larrish, A. D. Brewer and wife.

Canso, N. S.—S. S. Dickenson and wife.

Chicago, Ill.—Frank Richardson, J. N. Crittenton, E. W. Mayfield, W. I. Capen and wife, C. M. Baker and wife, G. Parker, Miss J. D. Pfeifer, R. E. Cuppage, C. S. Loewenthal and wife, R. Z. G. Davidson, John S. Henderson, D. S. Anderson, wife and daughter; W. J. Lloyd and wife, F. J. Scherrer and wife, C. H. Bristol and wife, J. Leary and wife, H. L. Baker and wife, F. M. Randolph and wife, Mrs. W. R. Holligan.

Cincinnati, O.—A. T. Gould, C. R. Tilghman and wife.

Columbus, O.—O. H. Newell, George Cole.

Covington, Ky.—J. J. Grant, wife and daughter.

Carbondale, Pa.—Frank Smith.

Cresson, Pa.—H. Taylor, wife and daughter.

Denver, Col.—T. McCammon.

Duquesne, Pa.—G. M. Ferry, wife and son; Miss M. D. Shryolk.

Englewood, N. J.—C. W. Chamberlain, Perry Chamberlain and wife and Annie E. Chamberlain.

Erie, Pa.—G. J. Golding and daughter.

Hartford, Conn.—L. Hempstead, R. P. Martin and wife.

Hutchinson, Kan.—W. C. Carswell.

Hazel Hill, N. S.—J. W. Lawson.

Jersey City, N. J.—J. B. Bertholf.

Keene, N. H.—G. S. Ball and wife.

Kansas City, Mo.—M. S. Wood and wife.

Louisville, Ky.—F. B. Williams.

Lyndonville, Vt.—A. D. Paige and wife.

Memphis, Tenn.—E. E. Cord.

Mt. Pleasant, Pa.—J. Landis.

McKees Rock, Pa.—D. F. Henlock and wife.

Montpelier, Vt.—D. E. Mason and wife.

Minneapolis, Minn.—Dr. S. Friedlander, wife and daughter.

Montreal, Que.—L. B. McFarlane, wife and daughter; W. B. Powell and wife, W. J. Camp, wife and daughter; James Kent and wife, F. H. Waycott, J. J. Graham, Chas. Noble and wife, John Horn and daughter, Wm. McKenzie, James Poustie, D. C. Dewar and wife, A. Walsh and wife, W. G. Slack and wife, H. Bott and wife, W. P. Martin, W. B. Rivet, W. D. Scott and wife, T. Rodger and wife, James Cochrane and wife, S. R. Martin, F. L. Jennings and daughter, R. F. Jones, J. F. N. Caisse, J. F. N. Richardson and wife, Mrs. W. T. Grose and James Bayles.

New York City—T. P. Scully and wife, G. F. Randolph and wife, C. A. Hicks and son, J. B. Sabine and wife, John B. Taltavall and wife, F. E. McKiernan, W. C. Burton, John Brant and wife, J. A. Regan, R. C. McDonald, Wm. Maver, Jr.; T. E. Fleming, C. P. Bruch, M. J. O'Leary and wife, E. F. Howell and wife, W. L. Ives, Jesse H. Bunnell, Mrs. J. H. Bunnell, Mrs. D. B. Mitchell and daughter.

Nutley, N. J.—M. D. Abercrombie and mother.

Newberne, N. C.—Geo. Henderson.

Newark, O.—Chas. A. Anderson.

Natchez, Miss.—C. W. Montgomery and wife.

Nashville, Tenn.—H. B. Geer and wife, W. C. Atkinson, J. W. Fisher.

New Orleans, La.—E. J. Davis.

Newark, N. J.—J. A. Sutherland.

New Canaan, Conn.—Dr. L. M. Monroe.

New Britain, Conn.—Mrs. H. B. Humason.

Ottawa, Ont.—J. E. Hutcheson and wife, T. Ahearn, J. D. Fraser, G. F. MacDonald.

Omaha, Neb.—U. G. Crispell and wife.

Philadelphia, Pa.—Col. W. B. Wilson, W. E. Van Arsdall and wife, John Wintrup and wife.

Pittsburg, Pa.—W. A. Case and wife, J. W. Yealy, F. J. McKenna and wife, J. W. Stump and wife, Chas. R. Stough, J. E. Rowe, Dr. Zant, T. Miller, wife and daughter; W. I. McQuown, Wm. Allenbaugh, J. A. Wilson and son, Mrs. J. Adams, Perry O. Adams, J. Adams.

Portland, Me.—C. D. Livermore and daughter.

Paterson, N. J.—J. E. Dunning and wife.

Poughkeepsie, N. Y.—Mrs. J. B. Nelson.

Richmond, Va.—J. S. Calvert, Samuel R. Crowder, G. A. Sinclair.

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River Falls, Wis.—F. S. Ainsworth.
St. Paul, Minn.—A. J. Willard and wife, G. W. Hurd.
So. Framingham, Mass.—C. N. Gibbs.
St. Johns, N. F.—A. M. Mackay.
St. Johns, N. B.—P. W. Snider and wife.
San Francisco, Cal.—Cal. Byrne.
South Fork, Pa.—T. S. Fleming and wife.
St. Louis, Mo.—J. P. McClure and wife, Miss F. Meyer.
Troy, N. Y.—J. W. Copeland and daughter.
Toronto, Ont.—H. P. Dwight.
Washington, D. C.—W. E. Peirce.
Wilkinsburg, Pa.—C. A. Nutinger.
Winsted, Conn.—C. K. Hunt, wife and daughter.

Too much praise cannot be accorded to the various committees for the excellent work performed by them, the result of which was shown in the smoothness with which all details were carried out. The Reception and Entertainment Committee was simply indefatigable in their attentions, especially that portion devoted to the welfare of the ladies of the party. Everything possible was done to render the stay of the visitors agreeable, and the remembrance of these efforts and the kindly impressions produced will not be forgotten.

The Reception and Entertainment Committee was made up as follows:

Mayor Prefontaine, Alderman Sadler, John Ross, W. G. Ross, H. R. Lockhart, P. G. Gosseler, M. J. Kennedy, Jas. Cochrane, M.L.A., John Horn, G. F. Gildersleeve, Capt. Sheppard, B. A. McNab, J. F. H. Caisse, W. J. Camp, F. H. Waycott, C. R. Hosmer, Hon. L. J. Forget, R. Forget, W. L. Wanklyn, W. H. Browne, Dr. Drummond, C. W. Spencer, Mathew Hodge, James Poustie, C. F. Sise, Judge Carriere, W. D. Scott, J. F. Richardson, W. B. Powell, Charles Noble, Samuel Martin, W. McLea Walbank, G. B. Burland, R. S. Kelsch, W. C. Dalrymple, James Kent, J. E. A. Robillard, C. P. Sclater, Thos. Henry, D. C. Dewar, J. J. Graham, W. G. Slack, Thos. Rodger, Arthur Walsh and W. B. Rivet.

The Ladies' Reception Committee embraced the following names:

Mrs. L. B. McFarlane, Mrs. E. Ahearn, Mrs. D. C. Dewar, Mrs. James Kent, Mrs. B. A. McNab, Mrs. W. G. Slack, Mrs. J. Poustie, Mrs. Wm. Grose, Miss Ruth McFarlane, Mrs. Jas. Cochrane, Mrs. C. R. Hosmer, the Misses Horn, Mrs. T. Rodger, Mrs. F. H. Waycott, Mrs. W. D. Scott, Miss Townsley, Mrs. J. E. Hutcheson, Mrs. W. J. Camp, Miss C. Camp, Mrs. John Brant, of New York; Mrs. W. B. Powell, Mrs. A. Walsh, Mrs. Chas. Noble and Miss Jennings.

THE ENTERTAINMENT.

At 2 o'clock in the afternoon of September 11, some two hundred carriages conveyed the entire party around the city and up Mount Royal, where refreshments were served, the delegates thus entertained being the guests of Mayor Prefontaine. A very enjoyable afternoon was spent in this beautiful park, speeches and toasts were made and responded to.

In the evening those who did not attend the annual meeting of The United States Military Telegraph Corps, made up theater parties and in other ways enjoyed themselves. Telegraph stories were indulged in by the delegates congregated in various corners of the large corridors of the hotel, and many a telegraph yarn of remarkable occurrences in olden times gained publicity for the first time.

At 10.30 A. M. on September 12, a visit to the electrical buildings of Montreal was made. In the afternoon the steamer Duchess of York conveyed the entire party up the Lachine canal, shooting the rapids on the return trip, after which an inspection of the harbor of the city was made.

Friday, September 13, the third and last day of the meeting, was devoted by the delegates largely to sightseeing, and groups and stragglers of visiting telegraphers, the vast majority of whom were in Montreal for the first time, might have been observed all over the city, viewing the many points of interest with which the old town abounds, and peering into various odd nooks and corners. Early in the afternoon a trip by trolley cars was made to the power plant of the Lachine Rapids Hydraulic and Land Company. The ride was a delightful one and revealed a succession of charming views that elicited much pleasing comment, while the inspection of the extensive plant was invested with much interest.

Altogether the meeting at Montreal was one full of interest and pleasure to all who participated.

THE BANQUET.

At the banquet Thursday evening over two hundred members and their friends were present, including many distinguished citizens of Montreal. After coffee was served, Toastmaster W. C. Burton, of New York, rapped for order and called upon President McFarlane, who proposed the toast: "The King." The toast to the "President of the United States" was responded to by Col. Bettinger, United States Consul-General to Canada. Telegrams of good cheer were read from President-elect of The Old-Time Telegraphers' Association, G. H. Corse, of Ogden, Utah, and from Vice-President-elect Belvidere Brooks, of Denver, Col. Letters of regret were read from many prominent telegraph and railroad officials, including Gen. Thomas T. Eckert, William H. Baker, Thomas F. Clark, and Orrin S. Wood, of New York. The latter stated that it was now fifty-seven years since he began his telegraphic career as a student on the first telegraph lines of Professor Morse, at Washington, D. C. A letter of regret was also read from H. J. Pettingill, of Boston, Mass.

The first speaker was Mr. H. P. Dwight, of Toronto, Ont., president and general manager of the Great North Western Telegraph Company of Canada. He stated that many of the telegraph people referred to him as the "Father of the Canadian telegraph." If this were so, Mr. Orrin S. Wood, now of New York, but in 1847, of Montreal, must be the "Grandfather" of Canadian telegraphs. Mr. Dwight's remarks were of a reminiscent nature and extremely interesting to those present.

Mr. Wm. Maver, Jr., of New York, gave his experience as a telegraph operator in Montreal thirty

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years ago, naming his associates at the key at that time.

Mr. S. R. Crowder, of Richmond, Va., entertained the assemblage with several songs, accompanying them with the guitar.

Col. Wm. B. Wilson, of Philadelphia, responded to the toast, "The Ladies," in his usual gallant style. During his remarks he paid a glowing tribute to the late J. H. Bunnell.

Mr. L. I. McMahon, of Montreal, sang an appropriate song.

Mr. M. J. O'Leary, of New York, was the next speaker and gave some interesting facts bearing on fratrnal organization.

Miss Fannie Meyer, of St. Louis, sang with magnificent voice and pleasing effect the "Holy City."

Mr. W. M. Walbank, of Montreal, was the next speaker.

Mr. A. M. Mackay, of St. Johns, N. F., gave a history of his fifty-one years of telegraph service. Mr. Mackay gave the credit to Cyrus W. Field, of New York, for conceiving the first idea of an Atlantic cable, but he conceded the honor to John Brett, of London, England, of having first invented and made successful deep sea cable laying.

Mr. W. L. Ives, of New York, spoke eloquently on the memory of the late James Douglas Reid.

The festivities were brought to a close at a late hour by appropriate remarks of the toastmaster.

Simultaneous Telegraphy and Telephony.

Mr. C. G. Sholes, superintendent of the Atchison, Topeka and Santa Fé Railroad, Topeka, Kan., is experimenting with simultaneous telephony and telegraphy. Mr. Sholes has been experimenting with his device between stations on the line of the Santa Fé between Kansas City and Topeka, and has succeeded in eliminating difficulties met with in first trials. While the arrangement has so far worked only for short distances, the Santa Fé superintendent is of the opinion that there is no reason why it should not work for long distances. He now proposes to make tests at long range, and if these prove satisfactory, the matter of equipping offices will be taken up by the Santa Fé management.

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Canadian Telegraph Statistics.

George Johnson, Dominion Statistician, has furnished the following telegraph statistics: The telegraph system of Canada includes 3,906 miles of land and cable telegraph lines owned by the Dominion Government, and 30,717 miles owned by companies, making a total of 34,623 miles of lines and 84,510 miles of wire. The messages of the signal quarantine and meteorological services, and also the bulletins giving the movements of the fish in the waters in the Gulf of St. Lawrence and other shore lines, are transmitted free. Since 1895 the mileage of the lines under Government control has increased by 1,182 miles, the total sum voted for construction and operation and maintenance of telegraph lines during 1900 amounting to $527,400. The companies' lines conveyed 4,960,414 messages in 1900. In 1891 the average number of messages carried annually per office was 1,700, and in 1900 it was 1,850, the number of offices increasing in the period by 198. Per mile of line the number of messages annually increased from 151 in 1891 to 161 in 1900.

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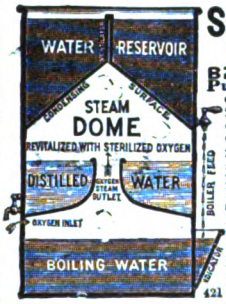
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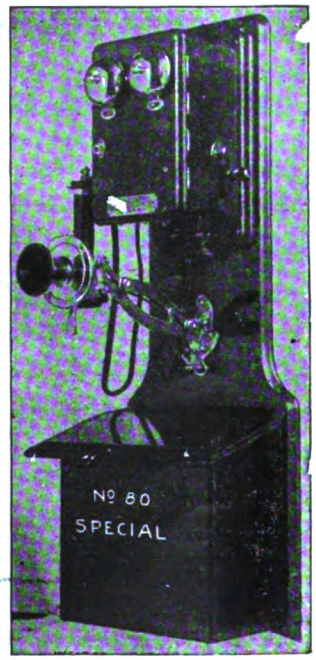
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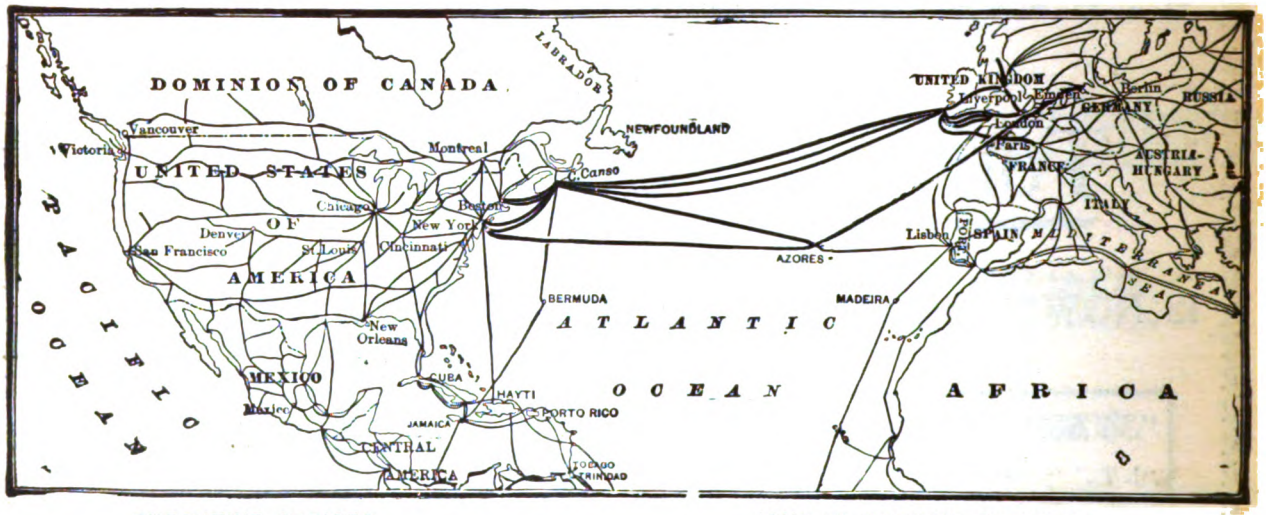
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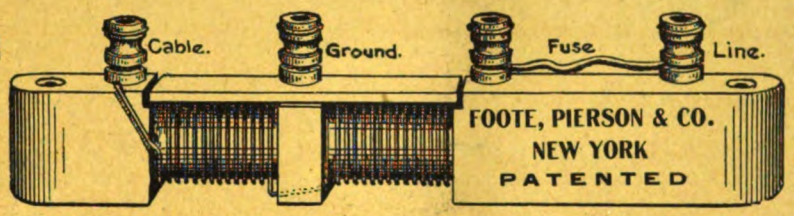
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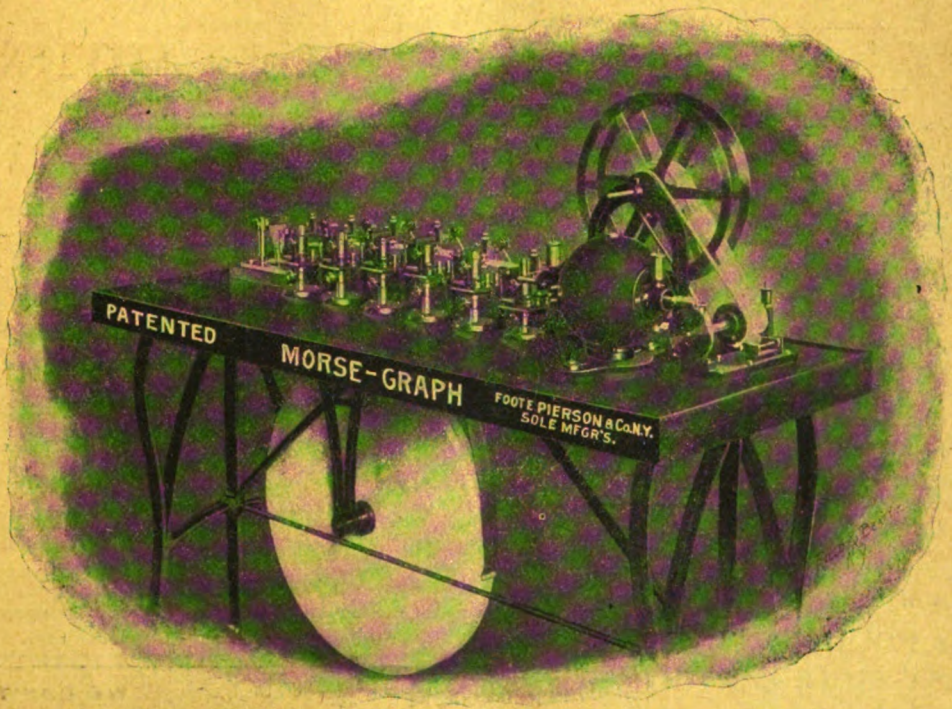
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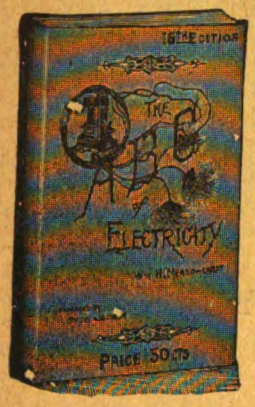
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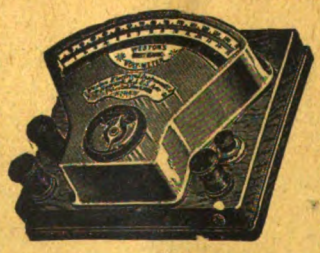
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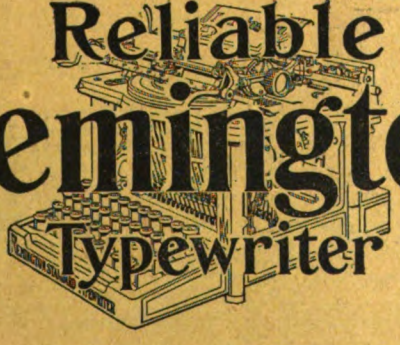
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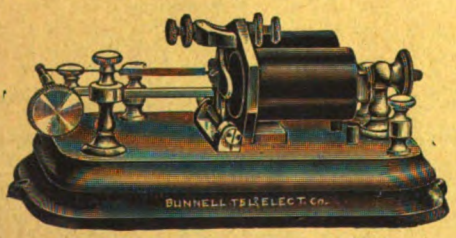
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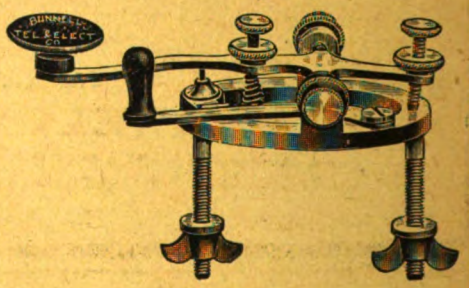


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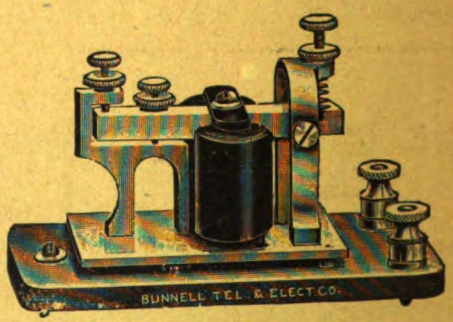


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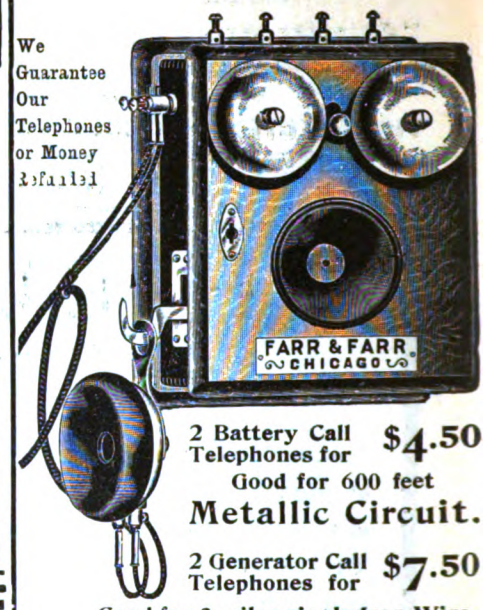
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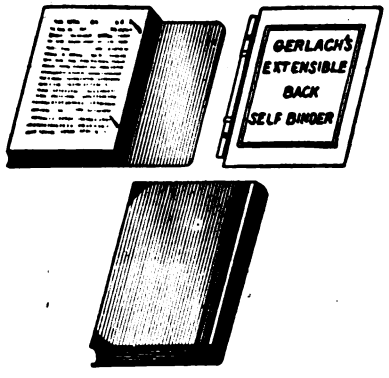
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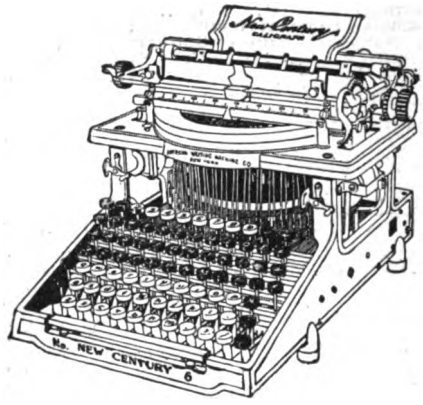
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No. 19. NEW YORK, OCTOBER 1, 1901. Vol. XXIV.

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SOME POINTS ON ELECTRICITY.

The Equipment of a Modern Telegraph Office, Continued.

BY WILLIS H. JONES.

[In the September 1st issue of this journal Mr. Willis H. Jones began a series of articles showing the complete details of equipping a modern telegraph office. Beginning with the proper selection of the dynamos, his aim will be to carry the reader step by step from the cellar to the operating department; thence through the labyrinth of house wires underneath the floor to the various apparatus, stating the size of wires to be used for the main and sub-leads, and last but not least, to give a full and accurate reason for each move.

The series will be a complete handbook for any one contemplating the instalment of a new office or making alterations in an old one. The value of these important articles will be such as to interest a wide circle of readers, and those who desire to follow them in their consecutive order should send in their subscriptions at once.—Editor.]

The next point to be determined is that of the value of the electromotive force of the dynamo to be installed for the purpose of furnishing current to the local sounders. As heretofore stated this is very much a matter of choice, and also depends largely upon the particular type of sounders you expect to use. The choice between a high and a low voltage machine depends upon whether you prefer a given strength of current in a "long" or a "short" local circuit; in other words, whether you will have the necessary quarter of an ampere of current in a circuit of 4 ohms resistance fed by 1 volt; a hundred ohm circuit fed by 25 volts, or some other equivalent ratio between those extremes. Some believe that a comparatively high electromotive force gives the instruments a quicker action than a low pressure, and therefore insert sufficient artificial resistance in the local circuit to reduce what would otherwise be an excessive volume of current to a proper value.

While electricians differ somewhat on this point there is this much to say in favor of a reasonably high electromotive force—it will overcome a slight addition of resistance to the circuit due to ink or dust temporarily obstructing the path, without materially decreasing the working strength of the current, whereas the same amount of resistance finding its way into the shorter circuit would alter the ratio existing between the total resistance of such circuit and the low electromotive force to such an extent that the weakening effect would be noticed at once.

Again, in medium size offices where there are a number of short grounded legs extending to branch offices (erroneously called "loops") which receive current through the local connections of duplex and quadruplex apparatus, it is advisable, for economical purposes, to employ but one machine for local apparatus and compel it to furnish the entire current for both multiplex and single line sounders. This matter is easily arranged by simply building up the resistance of the single line relay sounder circuits artificially to a value equal, at least, to that of the longest loop or leg to a branch office. Details of this arrangement will appear later.

As every single and multiplex circuit relay requires a sounder, say of the 4 ohm pattern, demanding five times as much current as the main line itself, it follows that the capacity of the machine furnishing current to the local circuits must be at least that many times greater than those feeding the main wires. In fact, it should be more than five fold, for the reason that the local coils of every polechanger, transmitter, and repeating sounder is also fed from this one supply.

For an office like that of New York, Chicago or St. Louis, where the number of branch circuits is exceedingly great, it is perhaps advisable to employ separate machines for the loop and the house local circuits respectively.

If this plan be adopted in this latter arrangement the value of the electromotive force of the dynamo feeding the house locals may be greatly reduced; in fact you may choose almost any pressure de-

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sired suitable for the winding of the sounders adopted. If you do not know exactly how much current a given sounding, as indicated in ohms, requires, ask the instrument maker. Every apparatus nowadays is constructed for a prearranged volume of current and should not be worked in a circuit where the strength of current therein does not correspond with the marks of the maker.

The modern way of arranging dynamo local circuits in an office is to place them all in multiple; that is to say, place each sounder in a separate circuit which extends between two parallel leads, as the rung of a ladder connects the side supports. This plan has been found to be most economical, as less wire is required to make desk connections throughout the operating department.

Having decided upon the multiple system, before you can decide the proper electromotive force of the dynamo you must first decide upon how much artificial non-inductive resistence you wish to insert in the local circuit in series with the sounders. This point settled, the required pressure may be found by multiplying the total resistance in circuit by the necessary strength of current in milliamperes demanded by the particular winding of the sounder employed. For example: For a 4 ohm sounder circuit with 4 ohms artificial resistance inserted in series the electromotive force would be $4 + 4 \times .250 = 2$ volts; with 12 ohms artificial we would have $12 + 4 \times .250 = 4$ volts. This rule holds good for any type of sounder used, the only change in the formula being the multiplier which must be that of the value of the current required to actuate the instrument you install.

The object of inserting the non-inductive resistance is to weaken the counter effect of the self-induction in the coils by giving it extra work to perform outside of the bobbins instead of exerting its strength entirely within; and it may here be stated that the greater the ratio of such added resistance is to the value of the electromotive force employed the less harm can the counter influence do. This fact may be satisfactorily verified by comparing the signals received on the 4 ohm sounder of a duplex where the external or non-inductive resistance is probably 80 per cent. that of the loop, with those of single line relay sounders improperly arranged in multiple.

The artificial resistance may be inserted in the form of a small coil of German silver wire underneath the base of the sounder, or it can be attached to the table permanently if preferred, but the more popular plan is to follow the first suggestion and thus avoid the bother of making extra connections.

(To be continued.)

Recent Telegraph Patents.

A patent has been granted to John F. Skirrow, of New York, for a resonator.

I. Kitsee, of Philadelphia, Pa., has been granted a patent for a device for indicating leaks of insulation on electrical conductors.

Personal Mention.

Mr. John W. Mackay, president of the Commercial Cable Company, arrived from Europe September 14.

Mr. H. D. Reynolds, superintendent of the Postal Telegraph-Cable Company, Buffalo, N. Y., is confined to his home with typhoid fever.

Mr. Wm. H. Baker, general manager of the Postal Telegraph-Cable Company, New York, is spending a vacation of two weeks in Colorado.

Mr. Edward Reynolds, auditor of the Postal Telegraph-Cable Company, New York, has returned from his vacation which was spent in Minnesota.

Mr. Francis W. Jones, electrical engineer of the Postal Telegraph-Cable Company, New York, has returned to his office after a six weeks' business trip to the Pacific coast.

Ernest Van Every, son of J. B. Van Every, vice-president and auditor of the Western Union Telegraph Company, is seriously ill with typhoid fever at his home in Brooklyn, N. Y.

Lord Strathcona, of Montreal, Que., a director of the Commercial Cable Company, has presented to the Royal National Mission to Deep-sea Fishermen a beautiful hospital ship for service on the Labrador coast.

Mr. George Clapperton, traffic manager of the Commercial Cable Company, New York, sailed for Europe on the steamer Majestic on September 11. It is his purpose to remain on the other side but for a short period.

Mr. John H. Smart, superintendent of the Commercial Cable Company, New York, is acting traffic manager of the same interests in the absence of Mr. Geo. Clapperton. Mr. S. F. Austin is acting superintendent, taking Mr. Smart's place.

Mr. A. S. Brown, electrical engineer of the Western Union Telegraph Company, New York, has returned to the city. While he has not resumed the actual duties of his position, he visits his office almost daily, and he looks very much improved in health.

Mr. H. L. Shippy, New York manager of the John A. Roebling Sons' Company, had one of the "closest calls" of his life recently, when the steam yacht "Rapidan" was wrecked in a northeast gale off Cape Henlopen, Delaware. The party and crew were landed with great difficulty in surf boats, after it was found that the breeches buoy could not be used by the Life Saving Corps.

Mr. George T. Manson, of the Okonite Company, New York, who was a delegate to the convention of the International Association of Municipal Electricians, at Niagara Falls, lately, afterwards entertained a party of fourteen at a game dinner at the Pioneer Hunting and Fishing Club, Buffalo, on September 5. It was a delightful affair, and Mr. Manson fully sustained his enviable reputation as a host.

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Mr. W. Y. Ellett, superintendent of fire alarm telegraph, Elmira, N. Y., reassumed the duties of his office on September 21, the Court of Appeals having sustained him in his case of unjust suspension from office by the new board of commissioners.

Miscellaneous Items.

The wife of Mr. A. W. Rossiter, an old timer of Pittsburg, Pa., died in that city September 13.

The Western Union Telegraph main office in New York is handsomely decorated, as well as many of their other offices throughout the country.

Mr. John Fothergill, of the Western Union cable force, Canso, N. S., has returned from England, accompanied by his wife. Mr. Fothergill spent three weeks in Great Britain.

Mr. Patrick B. Delany, the old time telegrapher and electrical engineer, of South Orange, N. J., in a recent letter stated that he "was glad to renew his subscription once more for the bright and truthful TELEGRAPH AGE."

Mr. George H. Albee, of Windsor, Conn., an old time telegrapher, now a justice of the peace, in renewing his subscription, writes: "I find TELEGRAPH AGE a clean, newsy, up-to-date journal, bearing evidence to the industry and intelligence necessary to make it so."

The executive offices of the Postal Telegraph-Cable Company authorized the managers throughout the country to drape their respective offices in mourning out of respect to the memory of President McKinley. The decoration of the main office in New York city is at once elaborate, artistic, and imposing.

Mr. Frank P. Foster. of Corning, N. Y., secretary of the International Association of Municipal Electricians, in a recent letter, writes:

"I wish to thank the publishers of TELEGRAPH AGE in behalf of the association for the very full account given of the late Niagara Falls, N. Y., meeting, as well as the space that you have given us during the years past in notices of the meetings and subjects presented. No one can, I believe, see the amount of good done the association by the technical press, or realize the benefits as well as the secretary, and I wish to state that our association would still be in long dresses or infants' clothes, if it had not been for the press that has given so liberally of their columns to advertise us."

New York Visitors.

Mr. W. E. Peirce, of the Western Union Telegraph Company, Washington, D. C.

Mr. George C. Maynard, of the Smithsonian Institute, Washington, D. C., an old time telegrapher.

Those who contemplate subscribing for TELEGRAPH AGE, and who would first like to inspect a sample copy, should not fail to write for the next issue.

Obituary.

Mrs. Frank Trickle, wife of the day Associated Press operator at Denver, Col., died suddenly in that city on September 14.

George E. Netherland, who for the past ten years has been wire chief of the Western Union Telegraph Company, at Louisville, Ky., died September 5, of peritonitis.

D. E. Martyn, night chief operator for more than twenty years of the Western Union Telegraph Company, at Kansas City, Mo., died in that city from apoplexy on September 15. He was 63 years of age.

Resignations and Appointments.

Mr. F. A. Grasty, manager of the Postal Telegraph-Cable Company, at Baltimore, Md., has resigned on account of poor health.

Mr. M. A. Beatty, of Jackson, Miss., has succeeded J. A. Caldwell as manager of the Postal Telegraph-Cable Company, at Knoxville, Tenn., the latter resigning to enter other business.

Business Notice.

An automatic circuit closer for telegraph keys is now being placed on the market by Nye & McIntosh, of Los Angeles, Cal. Mr. L. C. McIntosh is a well-known operator at that point, and understands the subject very thoroughly. The device is a very simple yet effective one, never failing to close the circuit the instant the fingers are removed from the key knob.

By Telegraph to Klondike.

The outside world is now connected with the Klondike by telegraph. The all-Canadian Government telegraph line from Vancouver to Dawson was completed on September 24. The first despatch to go through was a message of congratulation from Gov. Ross, of Klondike, now at Vancouver, to his legal representative at Dawson.

The line is 2,200 miles long and part of the route is that taken by an abandoned line originally projected for the Collins overland route in 1865. It was to connect America with Europe, when the successful laying of the Atlantic cable killed the enterprise. The line starts at Vancouver and touches Ashcroft, Quesnell, Hazelton, Telegraph Creek, White Horse and Dawson, and connects at the Alaskan boundary with the projected American Government line from St. Michaels. A branch line taps Fort Simpson for the convenience of incoming Dawson steamers.

The Academy of Sciences, Paris, has heard a report on a telegraphic invention recently made by M. Mercadier, of l'Ecole Polytechnique. It combines a multiple with the Baudot apparatus, so as to enable sixteen operators to work simultaneously on the same circuit.

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Women as Telegraphers.

In England women are largely employed as telegraph operators. This is due in great part to the score of economy. On this subject Mr. C. H. Garland, an English authority in a letter originally published in the Economic Journal and reprinted and commented upon in Telegraph Chronicle, London, deals with the reasons for such employment, presenting the British service as the standard and comparing therewith the work of women operators in different European countries. The letter is as follows:

"In England the introduction of women appears to have been facilitated by another influence. When Mr. Scudamore first caught from the telegraph companies the idea of employing women, he saw, in addition to their cheapness, that the plan offered another advantage. Women simply required a nomination for admission to the postal service, and their employment on a larger scale opened up a light and relatively remunerative occupation for the female relatives of postal officials. There is little doubt that this prospect secured some support to the scheme among the colleagues of Mr. Scudamore. In Germany the first introduction of women as telegraphists, between the years 1874 and 1877, seems to have been assisted by what the administration describes as 'lack of male staff.' It is not stated what was the cause of this lack. In Sweden another motive assisted the primary attraction of cheapness. In 1863 the Swedish States-General sent a humble address to the king, drawing his attention to the fact that the number of women in the kingdom of Sweden largely exceeded the number of men, and consequently a large number of women were cut off from their natural vocation, marriage. The States-General were of opinion that the duty of the State was to find employment for these women. The Swedish Government, without admitting its responsibility, agreed that exceptional cases might arise, and directed the telegraph administration to arrange for the admission of women. Allied reasons are officially stated to have weighed with the government of South Australia."

In addition to this motive of economy, women have the valuable quality of docility.

"There seems little doubt that a still further consideration with many of the administrations has been the relative docility of the women. In England and France the women are practically unorganized, while the men have followed the general tendency to form unions for the protection of their interests and the improvement of their position. The Italian administration describes this quality of women thus: 'The women do not generally concern themselves with political questions, and are strangers to the struggles of parties and interests. This endows them with the best qualities requisite for the telegraphic service, namely, patience, discipline, and application.'"

As an evidence of the widespread employment of women it is noticeable that 35 States in the Postal Association have adopted the system of engaging females as telegraphists or telephonists. Belgium has renounced the admission of women since 1889, and Germany has since that time discontinued the introduction of female learners.

The question of the efficiency of female telegraphists is not an easy matter to answer offhand, and Mr. Garland finds it necessary to descend into details. The first administrative statement quoted is that of England, which reported to the International Bureau in 1899 as follows:

"Generally speaking, the women are as efficient as the men, but they are more frequently absent for sickness, and their number is limited because they are not eligible for night duty; in addition, their pay is about 25 per cent. less than that of the men. In short, the employment of women offers great advantages."

Mr. Garland criticises this statement, and the conclusion which he arrives at is best expressed in the quotation from the evidence of Sir H. Fischer before the Tweedmouth Committee: "I think," he said, "an average male operator is superior to an average female operator. There is no duty which a female performs better than a male. There are duties which they perform equally well—for instance, working minor circuits. This work is now left principally to them in the Central Office." Austria, Belgium, France, and Italy all support the main contention that, while women can perform the minor manipulative duties equally as well as the men, for the work of supervision, the more important instrumental duties and the technical part of telegraphy, experience shows they do not compare advantageously with the males.

"'It is a matter of reproach,' says M. Mesurier in the report of the 1895 Budget Sub-Committee, 'that they cannot answer all the questions put to them, and it must be noted that they possess no technical knowledge, and frequently become confused in face of the innumerable details of the complex service in which they are engaged. Another objection is that the postal operations are not performed so rapidly by women as men. . . . The employment of women is perhaps advisable and useful on condition that they are chosen with discernment, according to their aptitudes, and the importance of the duties to be confided to them, but a selection is imperative.' The result of the experiments of the Austrian administration is practically the same. 'Women,' runs its report, 'have not sufficient energy to obtain authority over other persons, and the surveillance of women is always entrusted to men chosen specially for this task.'"

Mr. Garland thinks that the English female telegraphist compares very favorably in this respect with her Continental sisters, and instances one of the sections in the C. T. O. as a proof of his contention. He holds that "a number of women are capable of something more than mere routine duties, and that number is increasing, and believes that higher capacity seems to run hand in hand with a wider entry into public life."

(To be continued.)

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Home for Incapacitated Telegraph Operators.*

BY COL. WM. B. WILSON.

There is no fact better established in principle than the one that it is the duty of society to care for such of its members who through work, disease or advanced age have become incapacitated from further contributing to the common weal and cannot provide for their own maintenance. It is also a recognized principle that such persons, when so incapacitated, should be cared for in a manner commensurate with their former social position and the value of their past service to the community. These principles being recognized, it will clearly be admitted that having done their part in advancing the interests and prosperity of society, they are entitled by right to draw upon society for the means to sustain and rationally enjoy that portion of life which may be left to them. The twentieth century, on its opening, witnesses that society has not been derelict in its duty of honoring such drafts. While perhaps they may not have been paid in full, the sum of the credits is considerable, and the balances due are growing smaller with each recurring year. A multitude of channels through which are floated society's due to its incapacitated members have been opened, and more are in process of being opened. Through the mediumship of National, State and Municipal Governments, together with fraternal, mutual aid and beneficial societies, great progress has been made in giving assistance to those who are in need and entitled to it. Old Soldiers' Homes, Naval Homes, Old Men's Homes, Old Ladies' Homes, Masonic Homes, Odd Fellow's Homes, and Homes of kindred character are numerous throughout the continent. Railroad and some of the larger manufacturing corporations have provided or are providing for the relief and pensioning of their employes, and coupling with those desirable aids insurance for the benefit of the employe's family when death calls him away. Shall an incapacitated person be provided for in class or community is a question that hardly needs argument to decide in favor of the latter, but as we are confronted with the question of class provision, let us consider it.

That incapacitated members of our craft should be well taken care of is indisputable. They have worked along the lines of greater development of the Commonwealth, for, as the railroad, with its ramification, has carried over its iron bands the car of progress with wonderful results, that progress would have been very slow but for the aid of the telegraph, its hand-maiden. The same is true of commerce, trade, diplomacy, manufactures, education and science. That the manipulators of the telegraph, whatever their condition, should share in the results of social progress, will not be denied, and that we, as representatives of their craft should esteem as a sacred duty the earnest consideration of the method or methods whereby incapacitated telegraph operators should be cared for, none will dispute.

*Read at the meeting of the Old Time Telegraphers and Historical Association, at Montreal, Que. on Sept. 11, 1901.

The duty we have to perform in this respect is a call upon us as citizens before the class call of the telegraph fraternity. However, aside from our duty as between man and man, there is an attraction in the fraternal idea. The mysterious power which pulsates the metallic threads stretched across the continent, binding community to community, and bringing those far separated from one another into close personal touch, has formed a mystic cord cementing telegrapher to telegrapher in an indissoluble brotherhood and accentuated the duty one owes to the other.

It is for this reason that prominent in the minds of all of us in the suggestion of establishing a National or Continental Home for members of craft in America; and the taking of the best actions to insure carrying the suggestion into practical effect. Without affirming or denying the wisdom of determining a social question along class lines, let us as a body of telegraphers, consider the first point, and the important one, in its practical bearings.

A single centralized Home would of necessity have to be a large one if the proportion of incapacitated telegraphers bears any important relation to the whole body and would require a considerable sum of money to establish and maintain it. Postponing for a moment the financial problem involved, it is certain that upon our agreeing that such a Home was the proper way to meet the needs of our less fortunate craftsmen, we would be confronted with the difficulties involved in transportation, location, and the almost cruel separation of the beneficiaries from the friends of a lifetime and old familiar scenes. The Northern oak would languish and die where the palmetto and mangrove would flourish. Chicago would be miserable in St. Louis; New York die of ennui in Philadelphia, and Boston grieve over its patriotism in Charleston. Successful transplanting is a rare art where healthy stocks are concerned, but it is almost impossible with the aged, weak or sickly ones. These difficulties, however, might be met to some extent by substituting several Homes for a single Home, the providing for which would be in dividing the territory to be covered into circles, and organizing the operators in each circle into an association for the purpose of establishing and maintaining a Home within the circle. Montreal, Boston, New York, Washington, Atlanta, New Orleans, St. Louis, Cincinnati, Chicago, Omaha, Denver and San Francisco, would make good and logical centers for such circles.

Granted the consensus of opinion would be favorable to either proposition, and the suggested difficulties cast aside as not formidable, then promotion and financing to advance the object would loom up as very serious points of the question. How are they to be taken care of? Sentiment, that tender susceptibility which springs from our emotions and is a prominent characteristic of telegraphers, will be very prompt in answering that there are in the United States alone 120,000 telegraph operators in active service, and that each one

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contributing one cent a day would produce an annual sum of $438,000. That is truly a sum sufficient to establish and maintain a central Home or twelve circle Homes, but can such a fund be raised and the integrity of the amount maintained, year after year? It is more than doubtful. Eliminate from the aggregate number of telegraph operators, covering the field, all those employed in the railroad service who are now contributing to relief and insurance funds and for whom pension privileges have been already provided; then that large number of commercial operators who are connected with mutual aid societies; and those who through investment of part of their wages in building and loan associations or annuities or endowment insurance policies are making provisions for themselves in anticipation of the time when the bloom of youth shall have faded from the cheek and the footsteps become enfeebled, and the sum to be raised from the fraternity annually will shrink to very small, if not fatal, proportions. These eliminations must be made in any attempt which involves spending other people's money—an attempt, by the way, which has never met with any marked success. Considering that the average salary paid the average operator is not exorbitant and will not permit him or her to go beyond the provisions they may have already made for the future of themselves and fellow craftsmen, and further strain upon their limited resources, cannot be sustained.

From the view point of experience and careful study of the subject of caring for the incapacitated, I should say that while a Home appeals very strongly to my sympathies, yet the conditions are such I am convinced of the impracticability of the project. This, however, should not cause any one to abate an iota of interest or effect in behalf of the care of incapacitated operators.

The question seems to me to be one of greater breadth than that with which it has been furnished by the confines of a brotherhood, and is one which comes within the scope of social science. Sciologically considered, telegraphers contribute to the advancement of society through the corporate bodies by which they are employed and logically should receive their returns whether in health or incapacity through the same channel. Our efforts, therefore, should be exercised in the direction of urging upon the great telegraph companies the organization of relief, insurance and pension funds for the benefit of their employes. The great railroad companies have set them the example, and it is idle to say that such organization cannot be effected. It is only a matter of more or less detail, the setting aside of so much revenue and collecting contributions from employes. The Telegraph School has given to the world statesmen, authors, scientists, professional men, publishers, financiers and men of affairs, and it would be an over-bold person who would dare assert that it was incapable of furnishing managers of the telegraph who had the high sense of duty, ability and business capacity to solve such a simple problem, fraught with so much good to the social fabric.

A New Break Key.

A "break" key has been devised by Mr. J. F. Skirrow, assistant manager of the Postal Telegraph-Cable Co., New York, for use on duplexes and quadruplexes. This key is placed alongside the sending operator's key and is arranged so that when a break is made, the sending operator depresses the break key with his thumb without removing his hand from the regular key. When so depressed, the sounder on the sending side is cut in with the sounder on the receiving side, with the result that the sender gets the break instantly on the sending sounder. On releasing the key the circuits automatically resume their normal conditions. On circuits equipped with this device the repetition of and contention over the word "break" is unknown. The stoppage of transmission is cut down to a minimum and it is unnecessary for the receiver to take any notice of the break other than to call the sender's attention to it.

British Pacific Cable.

An interesting report, showing the progress of the work on the British Transpacific cable—to be the longest cable ever laid—has been received at the State Department from Consular Agent Robinson, at Norfolk Island. The report states that on the passage across to Norfolk Island from Brisbane, Australia, soundings were taken every 10 miles by the British cable steamer "Britannia," which is being used to mark out a track for the cable. About 100 miles from the coast an obstruction was met with in the shape of a range of submarine mountains lying directly in the track, and a deviation to the south had to be made to clear it. The greatest depth obtained was 2,800 fathoms, and the most shallow 237 fathoms, the latter being the depth recorded when the ship was right above the tops of the mountains. It has been decided to land the cable at Anson Bay, on the west side of Norfolk Island, and a cable house is to be built there. Norfolk Island will be one of the most important stations of this cable route, as all messages to Australia and New Zealand will converge there to be repeated.

Telegraph Lines to Straits of Belle Isle.

The Dominion Government telegraphs have been extended to Chateau Bay in the Straits of Belle Isle, and telegraph offices have been established at Pointe du Maurier, Harington, Mutton Bay, St. Augustin, Bonne Esperance, Blanc Sablon, Red Bay, and Chateau Bay. From the latter place a cable will be laid to Belle Isle, and a signal station established. It is the intention of the Government to test the Marconi wireless system between the same points. The completion of this work will be of assistance to the shipping using the Straits route.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for sample copy.

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Commercial Pacific Cable Co.

Articles of incorporation of the Commercial Pacific Cable Company were filed with the Secretary of State at Albany, N. Y., on September 23.

The articles say that the general route of the lines of the company will be across the United States to California, "thence under the waters of the Pacific ocean to the Hawaiian Islands, thence under said waters to the Philippine Islands, touching other islands in the Pacific ocean on the way."

The capital stock of the company is $100,000. The directors for the first year are John W. Mackay, of Virginia City, Nev.; George G. Ward, of New York; Clarence H. Mackay, of Roslyn, Long Island; Albert B. Chandler, Edward C. Clapp, Albert Beck, William W. Cook and George Clapperton, of New York.

Respecting the purposes and prospects of the new company Mr. Mackay said that the Commercial Pacific Cable Company had been organized for the purpose of laying a submarine cable from California to the Philippine Islands by way of Honolulu, in the Hawaiian Islands. The length of the cable will be about 8,500 miles, the part to be first laid being from California to the Hawaiian Islands. This portion, Mr. Mackay expects, will be in operation within nine months. The time required for the laying of the remainder of the cable from the Hawaiian Islands to the Philippine Islands will depend upon how quickly the cable can be manufactured, but Mr. Mackay believes the whole cable will be completed within two years from this date. On August 23 Mr. Mackay made application to the United States Government for landing rights in California and the Hawaiian Islands and the Philippine Islands.

The new company, Mr. Mackay announces, is willing to lay the cable on the same terms and conditions at San Francisco, Honolulu and Manila, so far as landing rights are concerned, as were imposed by the United States Government on the cable lines which have been landed on the Atlantic coast of the United States. The new company does not ask any subsidy or any guarantee, which is Mr. Mackay's reason for believing there will be no trouble in agreeing with the government on the terms and conditions upon which the cable will be landed.

The new cable, when it reaches the Philippines, will connect at that point with the present submarine cable running from the Philippines to Japan, and also the cable running from the Philippines to China. A direct cable route from China and Japan to the United States will thereby be established. At present cable dispatches from China to the United States have to be sent by way of Europe. Mr. Mackay said that the present cable rates from the United States to the Philippines and to China and Japan would be reduced when the new cable is laid from 30 to 60 per cent.

Officers of the Commercial Pacific Cable Company were elected on September 24 as follows: John W. Mackay, president; George G. Ward, vice-president; E. C. Clapp, treasurer, and Albert Beck, secretary.

Average Wages of Telegraph Operators.

One of the most comprehensive government reports issued in recent years is contained in two volumes, entitled "Wages in Commercial Countries," reported by Carroll D. Wright, Commissioner of Labor. Briefly the report is a compilation of the wages and hours of labor of persons engaged in all occupations all over the world, about which data have been officially published. Some of the data go as far back as 1725, as in the case of carpenters. The compilation was begun in 1894. It is a stupendous work, and nothing like it has been issued by any other government.

The following table shows the average salaries paid to and the working hours of telegraph operators in some of the states and in other countries:

	Wages a day.	Hours a week.
Montana	$2.30	58
North Carolina	2.70	—
Canada	1.32 to $3.60	56
Australia	.80 to 2.67	—
New York	1.81	70
Kansas	1.75	84
Great Britain	1.11 to 1.95	56
Mexico	1.92	60
Russia	.26 to 3.00	56 to 84
Michigan	1.51	84
France	.99	—
Belgium	.98	—
Germany	.68 to .98	63
Italy	.90	60
Netherlands	.50 to .99	56
China	.79	—

T. M. B. Association.—Assessment No. 384 has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of William Monaghan at the Philippine Islands; Clarence A. Cary at Norwich, N. Y.; and Oscar A. Brown at Brooklyn, N. Y.

Dynamotor plants will be installed by the Western Union Telegraph Company at Los Angeles and San Francisco, Cal., Milwaukee, Wis., Detroit, Mich., and storage battery plants will be installed at Savannah, Ga., and Chattanooga, Tenn.

"Electricity Made Simple" is the title of a 233 page book; paper binding, 50 cents; cloth binding, $1. The author, Mr. Clark C. Haskins, of Chicago, is an old-time telegrapher, but has been engaged as an electrical expert for the past twenty-five years in the various branches of electricity.

This little work is not intended for the instruction of experts, nor as a guide for professors. The endeavor has been throughout the book to bring the matter down to the level of those whose opportunities for gaining information on the branches treated have been limited.

Those desiring copies of this useful work may obtain the same by remitting price to J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

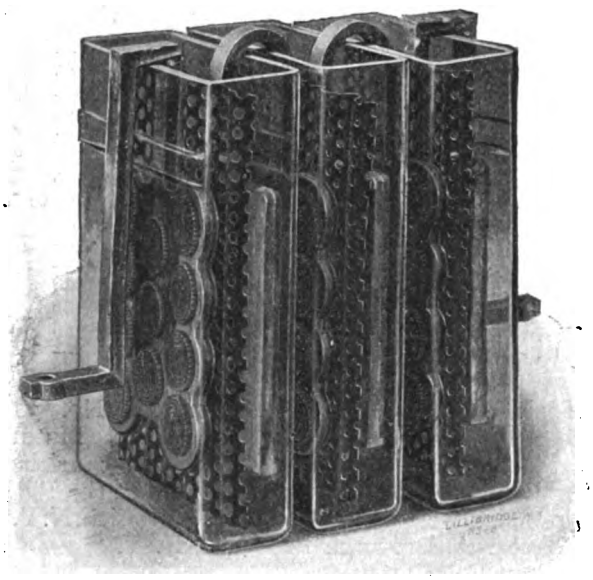
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A New Storage Battery Cell.

The constantly increasing demand for a storage battery cell especially adapted to meet the requirements of telegraph, fire alarm and laboratory service, where a comparatively high voltage and a small current capacity is desired, prompted The Electric Storage Battery Company, of Philadelphia, to place on the market about a year ago the style of element known as the B. T. type.

The peculiar construction of this type lies in the manner in which the lugs of the positive and negative plates are joined together, forming couplets, thus making practically a permanent connection between the positive plate of one cell and the negative plate of the adjoining cell. The simplicity of



THE NEW STORAGE BATTERY CELL OF THE ELECTRIC STORAGE BATTERY COMPANY.

this arrangement reduces greatly the labor of installing a battery for telegraph service, as the only thing necessary to do to set up the elements is to insert the plates in the jars, the positive plate, as stated above, suspending in one cell and the negative in the next.

The illustration given conveys, perhaps, more clearly the construction of these cells than any written description could give, and the manner in which the battery is set up. The plates are of the same construction as found in all the sizes of "Chloride Accumulators," the only marked difference in this type being the method of casting in couplets the two plates, and the fact that only two plates are contained in each jar.

There are three sizes of this type now catalogued, the B. T., C. T. and P. T., having a capacity at normal rating of six, twelve and twenty-four ampere hours respectively.

It is scarcely necessary to point out the advantages which a battery of "Chloride Accumulators" possesses over the gravity batteries formerly used for telegraph and fire alarm work—the smaller amount of floor space required by a storage battery, their reliability and cleanliness, and the minimum amount of attention required for their maintenance being potent enough factors to decide in their favor in any modern and up-to-date installation for these purposes. Thousands of "Chloride Accumulators" are now being used by the Western Union and Postal Telegraph Companies, and by the principal railways in this country and Canada.

The Electric Storage Battery Company gives dimensions, capacities and prices of these types in their new edition of Price List "A," copies of which will be forwarded upon request.

Telegraphers in the Philippines.

We take the following from the Manila correspondence of The Railroad Telegrapher, published in the September issue:

"Well, boys, if you want to come to the Philippine Islands, just enlist in the Signal Corps, if enlist you will. It does not make any difference if you never saw a telegraph office before, just tell them you are an operator, and they will enlist you at once. But if you are looking for promotion to some higher grade than a second-class private I would advise you to tell them you have been in "Fort Myer" for a session of Sergeant Carrigan's instructions. The Signal Corps is the only branch of Uncle Sam's army that is really working in these islands now, and our officers are the only ones who appreciate our hard and faithful service, but they are powerless when it comes to paying more money.

"Since the increase of the army there have been over 300 reductions made in our branch of the service. First-class sergeants reduced to corporals, making a difference of $31 a month. A first-class sergeant's pay is $55 a month; a corporal's is $24. The sergeants were reduced to the grade of first-class private, and the first-class privates to "soldiers," second-class privates, but the second-class handles his day's business just as if he was drawing $75 per month. Principally all the second-class privates are operators, not "Fort Myer Graduates," but men of ten to fifteen years' experience. If you want a job telegraphing for Uncle Sam, just come along. We pay you $15.60 per month, feed you on bacon and spuds; on Sundays we have rice and salmon. You only have eight hours a day for duty if you are lucky enough to strike an office where two men are assigned for duty. If not you can consider yourself on duty at all hours, both night and day.

"There have been a great many of the boys come from Cuba to these islands recently. They say that they were treated pretty nice in Cuba, but this is something they didn't expect over here.

"Now, if any of you lightning slingers want to see the Philippine Islands, we will very readily resign. It is an impossibility for an operator to get his discharge in these islands now, simply because their services are needed badly."

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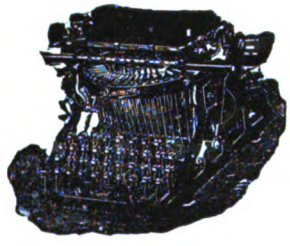
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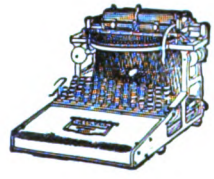


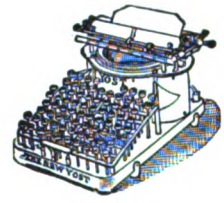
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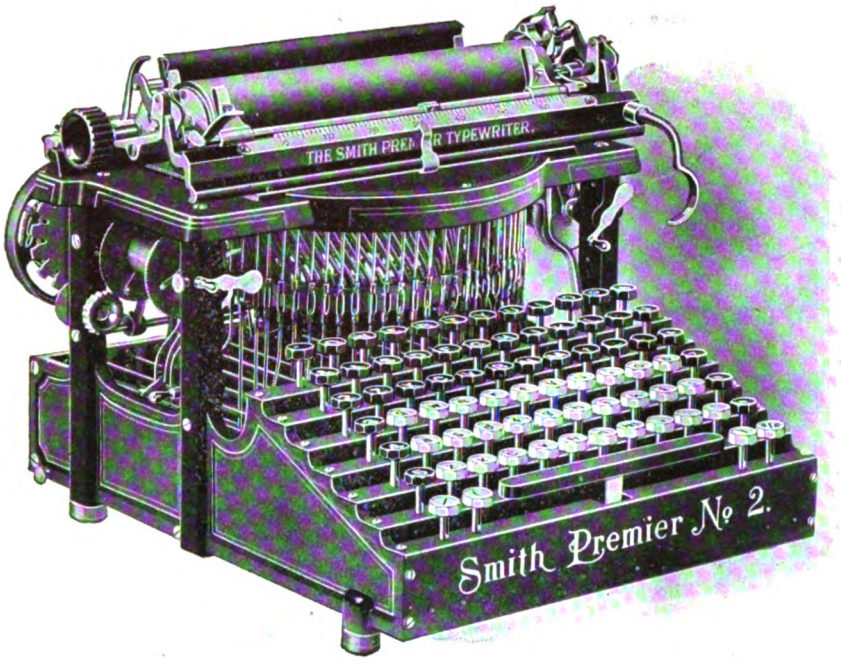
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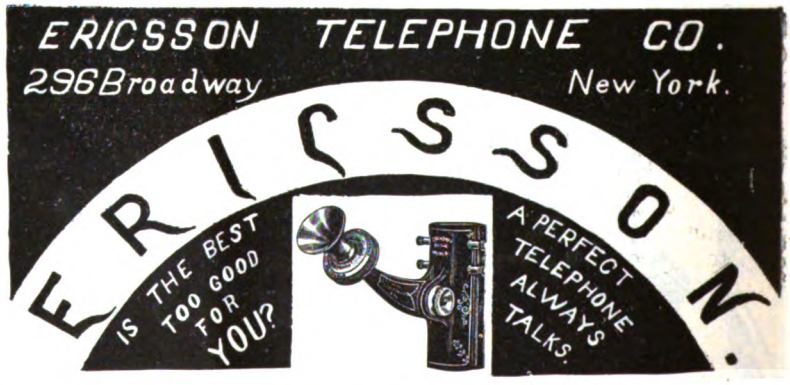
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NEW YORK, October 1, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

Suggestions Wanted for Office Management,

With the desire to make TELEGRAPH AGE of even more value to the telegraph office managers of this country as a source from which they may derive practical suggestions as to the best way in which to conduct some of the details of office management, it is our purpose to invite from managers contributions to this journal covering a series of questions which shall be propounded from time to time. In this systematic way, taking up point by point, it is believed that a valuable interchange of ideas may be established that will prove to be of mutual benefit to all concerned. A number of managers with whom we have consulted relative to this proposition have enthusiastically concurred in the plan outlined.

Conditions of time and place and of environment differ so widely in different offices, frequently permitting methods to be worked out in one office that were possibly deemed impracticable, or perhaps unthought of in another, that the satisfactory results that have been achieved, if told in intelligent recital by those who have been instrumental in bringing them about, ought not simply to interest alone, but to offer the solution of many a vexed problem troubling a brother manager, and show him exactly how to overcome his difficulty.

Probably the most important department in a telegraph office is that of the delivery, followed by those of the receiving, bookkeeping and cashier's, and the manager's executive office. Selecting, therefore, these heads as the first topics for discussion, any manager or other executive officer of a local office who has anything of value to say, who has been successful in overcoming obstacles, and who has perfected any original method whereby the operation of any of these departments is on the whole made easier and better, is cordially invited to tell his fellow managers of the same through the columns of TELEGRAPH AGE.

Communications should not as a rule be over a column in length, or say composed of about 500 words, and should be signed with the full name and address of the writer.

A department of this character, if it serves to develop and bring out the best thought and experience along the lines desired, ought to become, as it grows in helpfulness, one of vital interest to managers generally, and to arouse among them a greater spirit of fraternity.

The Lesson of President McKinley's Death.

The death of President McKinley has entailed so distinct a loss and shock upon this nation, the sad event was so filled with pathetic incident, and has engrossed the thought and time of the people to such an extent as to constitute an object lesson of majestic impressiveness and beauty, far reaching in its influences and inculcating a moral lesson which has sunk deep into the American heart.

Of humble birth, not superior in kind to thousands of others in this broad land, except possibly in the inheritance of certain sturdy qualities that contain the elements of better things, Mr. McKinley simply made the most of himself, doing it thoroughly, grandly and died affording the loftiest conception of a self-made man in all the higher attributes of mind and heart and accomplished purpose. In his exalted character he may well be accepted as a standard of the type of high and noble man-

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hood. As such he presents to the young men of this country a pattern to follow and an inspiration to cheer.

All cannot rise to be President, but with the talents with which we are endowed, some one, some two and others five, we owe it to ourselves as individuals, to the nation to which we belong, and to God to whom we must account, to make the best use of whatever qualifications we may possess.

This is a lesson which the death of President McKinley stamps ineffaceably upon his time and kind, and which, standing out the more clearly on account of his tragic death, appeals with greater force to the ambition, the understanding and the future of this and coming generations.

The Nation's Tribute.

The almost universal stoppage of all labor and transit in this country during the five minutes from 3.30 to 3.35 on the afternoon of September 19, the day of the funeral of President McKinley, was a most touching tribute by the activities of the United States to the man so widely beloved. At the time named a reverential hush came upon the land, and the strange and solemn spectacle was presented, not only of quietude, but also of prayerful utterance and sacred song observed in street and office, something never before witnessed. The cadences of "Nearer, My God, to Thee" and "Lead, Kindly Light," sounding in unaccustomed places of business, the refrain being caught up, echoed and repeated everywhere, gave expression to feelings tender and profound in their depth.

Probably nowhere outside the memorial meeting places were there more interesting exercises during the short calm than in many of the telegraph offices. Power was shut off, all wires were out of service and every instrument silent, conditions never before obtained. The time and occasion will never be forgotten.

President McKinley's Views on the Telegraph and Cables.

President McKinley, in his notable last speech delivered at the Pan-American Exposition, at Buffalo, made the following references to the telegraph and to the Pacific cable:

"Isolation is no longer possible or desirable. The same important news is read, though in different languages, the same day in all Christendom. The telegraph keeps us advised of what is occurring everywhere, and the press foreshadows, with more or less accuracy, the plans and purposes of the nations. Market prices of products and of securities are hourly known in every commercial mart, and the investments of the people extend beyond their own national boundaries into the remotest parts of the earth. Vast transactions are conducted and international exchanges are made by the tick of the cable. Every event of interest is immediately bulletined.

"The quick gathering and transmission of news, like rapid transit, are of recent origin, and are only made possible by the genius of the inventor and the courage of the investor. It took a special messenger of the Government, with every facility known at the time for rapid travel, 19 days to go from the city of Washington to New Orleans with a message to General Jackson that the war with England had ceased, and a treaty of peace had been signed. How different now. We reached General Miles in Porto Rico by cable, and he was able, through the military telegraph, to stop his army on the firing line with the message that the United States and Spain had signed a protocol suspending hostilities.

We knew almost instantly of the first shots fired at Santiago, and the subsequent surrender of the Spanish forces was known at Washington within less than an hour of its consummation. The first ship of Cervera's fleet had hardly emerged from that historic harbor when the fact was flashed to our capital, and the swift destruction that followed was announced immediately through the wonderful medium of telegraphy.

"So accustomed are we to safe and easy communication with distant lands, that its temporary interruption, even in ordinary times, results in loss and inconvenience. We shall never forget the days of anxious waiting and awful suspense when no information was permitted to be sent from Peking, and the diplomatic representatives of the nations in China, cut off from all communication, inside and outside of the walled capital, were surrounded by an angry and misguided mob that threatened their lives, nor the joy that thrilled the world when a single message from the Government of the United States brought, through our Minister, the first news of the safety of the besieged diplomats.

"At the beginning of the nineteenth century there was not a mile of steam railroad on the globe. Now there are enough miles to make its circuit many times. Then there was not a line of electric telegraph, now we have a vast mileage traversing all lands and all seas. God and man have linked the nations together. No nation can longer be indifferent to any other. And as we are brought more and more in touch with each other the less occasion is there for misunderstandings, and the stronger the disposition when we have differences to adjust them in the court of arbitration, which is the noblest forum for the settlement of international disputes.

"We must build the Isthmian canal, which will unite the two oceans and give a straight line of water communication with the western coasts of Central and South America and Mexico. The construction of a Pacific cable cannot be longer postponed."

Operators interested in the method of treatment of writers' cramp will find very complete information in the little booklet entitled "The Cure of Telegraphers' Paralysis," published by TELEGRAPH AGE, New York. Price 50 cents.

Send for a sample copy of the next issue of TELEGRAPH AGE.

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Lateral Induction and the Telegraph.

BY FRANK P. MEDINA.

The most striking characteristic in the growth of telegraph plants in recent years is, perhaps, the tendency to work direct circuits between points more and more distant from each other. The attempt to work such circuits as those between Chicago and San Francisco, which are now worked every day, was, a few years ago, looked upon as useless. But to-day New York and San Francisco are directly connected with each other by duplex systems, which yield very good results.

Of course these long circuits are compound in their nature; that is, they consist of component circuits added together through repeaters. Where the parallel wires are few, and far apart on the cross-arms, the compound circuits work well with few repeaters. Under these slimed working conditions the component circuits can themselves be of goodly length. One of them that make up the New York-San Francisco circuit of the Postal Telegraph-Cable Company, is 1,200 miles long, running direct from San Francisco to Albuquerque, New Mexico. Now, while fairly good results are attainable from long wires with few repeaters, notwithstanding the growth of parallel lines on the same poles, still there is a source of trouble that continues growing as new wires are added that causes the working to become more and more difficult. The cause of this trouble is the mutual action between the wires during the signaling process, and the effect is to shatter the signals by causing the relay levers to flutter, or by holding them back from responding to the signal-elements transmitted to them. The greater nearness of the wires to one another throughout their length is, of course, the reason for this increased interference between them.

Induction is the name given to the phenomenon that causes the trouble; mutual induction between wires. I am not able to get much satisfaction out of this name, for it appears to me to include phenomena so varied in character as to belong in different classes. But this is another story. Let us now distinguish between the mutual action which takes place between the primary and secondary coils of a transformer, and that which occurs between the two plates of a plane condenser. The former, or electro-magnetic induction, and the latter, or electro-static induction, both occur in the working of telegraph lines. Which of them is the more prominent in its effect? Do the inductive troubles between wires belong to the class of phenomena distinguished as electro-statical, or are they properly included under the head of electro-magnetic? Is the induction coil effect between these long wires the source of the shattered signals or are they due to the electro-static strain that manifests itself in a condenser? Notwithstanding the prevalence of the contrary view I believe the answer is that the electro-magnetic effect is usually negligible compared with the electro-static effect. Here is the fact pointing to that conclusion:

When an induction coil is operating, if the primary current is broken, the current in the secondary moves from end to end in the same direction, and a wire outside would carry the momentary impulse current throughout its length all in the same direction around the circuit. But there is no such effect manifested between long telegraph lines 16 or 18 inches apart. Substitute a condenser for the induction coil, but join it up so as to simulate the conditions obtaining between long parallel telgraph wires. This can be done in the case of a two-plate condenser, by attaching one of the plates to the middle of, say, a thousand-foot length of wire, and the other plate to another thousand-foot piece of wire. What happens when one of these wires is charged by a battery? The other wire is subjected to an inductive influence, but the current is no longer continuous around the circuit. In fact two currents flow away from the condenser in opposite directions along the second wire and tend to neutralize each other. Earthing the wires will make these two currents manifest.

Now this is exactly the effect that shows itself between two adjacent telegraph wires, and this is why I think our troubles come, not from the transformer effect between the wires, but from the condenser effect. A transformer effect would, on closing circuit A, produce a current in the same direction all along the line B. A condenser effect would produce a current that was moving, say, toward the distant station away from the point of maximum influence, and also a current toward the home station, away from the point of maximum influence, and this latter current, from the shorter route, would be very many times the stronger. This is because the point of maximum influence is close to the ends of the line, and the induced currents are strong in proportion to the shortness of their paths to earth.

Being statical in its nature this induction effect is a function of the electromotive force, and not a function of the current; so when it becomes necessary to decrease it, it has to be done by decreasing the electromotive force. This proposition, of course, implies that the placing of the wires farther apart is impracticable, for that is the real remedy indicated. There are two ways of accomplishing the design of reducing the electromotive force where a current of given maximum strength is used for signaling: using bigger wires or shorter wires. The former plan means the practical rebuilding of a plant, but the latter can be accomplished, still maintaining the total length of the compound circuit, by introducing more repeaters.

There are many strong reasons why these repeating stations should be as few as possible. Besides the extra running expense, there is always additional danger of apparatus trouble, and inattention of the attendant at any one of these points might destroy the usefulness of the whole line. Still there are reasons of greater moment which call for their establishment. Besides allowing a decreased electromotive force to supply component circuits, and thus diminishing the mutual static induction, the shorter circuit introduces a feature

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very valuable to clearness in signaling. To illustrate this let us examine the process of receiving a signal on a relay, by positive and negative currents.

Let us call the positive the marking current, and the negative the spacing current. With the spacing current flowing the relay lever rests on its back contact and the circuit of the local sounder is open. Now comes in the marking current, throws the relay lever over and closes the local circuit of the sounder. But just here is where the valuable feature of short circuit signaling comes in, where currents of a given strength are adopted for signaling purposes. In moving from the back to the front contact the lever is subjected to an interval of no pull either way—a moment when there is neither marking current nor spacing current, but a state of vague neutrality. What a figure is cut by this interval of time that it takes the lever to pass from one contact to the other may be appreciated when it is stated that it is only during this interval that inductive interferences are usually felt. When the lever is under the influence of the marking current, or when spacing current is flowing, the induction is seldom strong enough to affect it. But the interval of lever movement from one contact to the other: this is the precious time; this is when the signals are mutilated by the action of adjacent wires. Now, by shortening the circuit, the time-constant is diminished and this interval of lever movement is cut down. The lever moves with greater rapidity and leaves less time for foreign influences to do their deadly work. It is obvious that if the lever could be made to move with infinite speed, mutual induction such as disturbs us now would not be felt at all. I do not think that this element of signaling the time of lever movement is sufficiently considered in telegraph practice. It explains why it is necessary to use greater current strength to work the same instruments on long circuits than on short ones which would appear to be unnecessary at first glance. Being an interval of lost time, it is always to be subtracted from the length of the marking current interval, or from the length of the spacing current interval, and, therefore, shows why, with the standard current for shorter circuits, signals on longer circuits will drop out some of their elements and cause others to stick together. If this movement-time of the relay lever were more intently regarded, there would cease to be used in certain classes of multiple telegraphs, relays with extra heavy levers and armatures, which can only increase this movement-time to the detriment of the signals.

Recent devices for transmitting double current signals depend on this principle of lever speed for their efficiency. The currents that operate them are large, the local circuit in which they are operated contains a very large proportion of non-inductive resistance to make its time-constant small, and the levers are very, very light in weight. By this means, non-continuity preserving pole changers are made to simulate the effect of those that keep the points closed in reversing, thus obviating in dynamo quads and duplexes the necessity of using extra condensers and other cumbersome apparatus.—The Journal of Electricity, Power and Gas, San Francisco, Cal.

The Young Man's Chances.

President James J. Hill, the railroad magnate, has contributed an interesting article to the Saturday Evening Post on "Young Men and Speculation." He points out the danger to young men from the speculative craze, comments the Express Gazette, which is now sweeping over the country. He believes that there are a vast number of "wind and water" combinations being formed of the get-rich-quick kind, for fleecing a gullible public. He warns young men against mixing either with the fleecers or the fleeced; and says that there is no substitute for hard work in winning success. He is inclined to think a college education is a benefit to a young man, provided it does not make him priggish and breed distaste for practical work. He believes in work for everybody; and emphasizes hard work as the road to success instead of speculation. The demand for good men, he believes, is increasing rather than diminishing. "Capital is looking everywhere for the right man to direct it."

J. Sterling Morton's Conservative, speaking of the same theme, has an interesting symposium in reply to the question, "What are the young man's chances?" The conclusion of the contributors, in which the editor joins, is that "a young man's opportunities in the business world were never more numerous, attractive, or conspicuous."

The Conservative, however, warns young men against the false notion that success can be attained without hard work, and especially does it warn them against speculation, in which where few succeed, thousands fail. The successes are blazoned to the world, the failures are seldom heard of; they are the wrecks that strew the wayside to which small heed is paid in the fierce competition of life.

There is a great deal of healthy doctrine in this advice. It will fall upon all kinds of ground; and in the right soil will bring forth good fruit.

How the News of the President's Condition Was Furnished Canadians.

Every church in every city of the Dominion, from the Atlantic to the Pacific, was kept posted on Sunday, September 8, regarding the condition of President McKinley, at the instance of Mr. James Kent, the manager of telegraphs of the Canadian Pacific Railway Company, who gave instructions that this service should be furnished the Canadian public in this way. In many churches throughout the Dominion this means of conveying the news of such intense interest was highly commended.

The articles, "Some Points on Electricity," published regularly in TELEGRAPH AGE, are filled with practical information for the up-to-date operator. Send for a sample copy.

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A Terrible Reminiscence.

A crowd of drummers were sitting in the lobby of the Louisville Hotel the other night telling of their miraculous experiences, says the Louisville Despatch. All had told their stories but one little man with a short, chubby beard, and when he was called on he said that he had passed through but one thrilling experience and that was too dreadful to review. But the crowd insisted. The little man shrugged his shoulders, looked about him and began:

"I had been away from Louisville about three weeks and I was anxious to get home. I was twelve miles from the nearest station at sunset, and as I was not familiar with the roads in that section of the State I began to feel uneasy. But I was determined to make that station at any cost and I started, notwithstanding that I had been warned by some of the old men in the little town that there would be a storm before an hour. Well, the way I put that horse through was something to be marveled at, but I argued that it was either myself or the horse and I gave him another crack with the whip. I suppose I had made half the distance when it grew very dark and every moment the darkness was increasing. The men at the little town had not been mistaken, for the storm was on me and that with a vim. I shall never forget how the rain poured, but I would not have minded that much had the lightning not blinded my eyes and frightened my horse so he jumped to the side of the road at every flash. One time the horse pulled the buggy against a rail fence and shortly afterward he jumped into a ditch, which was no less than two feet deep. It took me some time to extricate the animal and the buggy from the gully and then I made another start. I was about as wet as I could get and I began to fear that I had lost my way and would have to be out in that condition all night.

"But the horse continued to splash through the mud and I thought it best to let him take his own course. The lightning grew more vivid every moment and the thunder was deafening. I could not see a foot ahead of me, and when we suddenly splashed into a creek I thought my time had come. At any other time I might have enjoyed the electrical display, but then I would have given a large sum to be at home peeling apples before the fire. Well, the trip was bad enough to unstring any man's nerves, but this is not my story.

"I imagined that I was several miles from the station, but suddenly my horse came to a standstill and I heard him rubbing his nose against the side of a house. Jumping from my buggy I ran close to the structure and began feeling around in the darkness. I suppose I had walked around the shanty three or four times when there was a vivid flash of lightning and saw to my surprise and satisfaction that I was at the station I had been seeking.

"'But why was it dark?' I said to myself, when there was a train due in about two hours, as far as I could judge. This mystified me and as a strange thought ran through my mind I shuddered. After feeling around the station for some time I found the door.

"Never in my life had I experienced such a strange feeling, and I was trembling from head to foot. I don't know exactly what caused it, but I suppose it was a premonition that something was wrong inside the station.

"Once on the inside I stood still trying to peer through the darkness, but the effort was in vain. A faint flash of lightning partly lightened up the room for an instant and I was sure I saw the figure of a man. The lightning flashed again and I was willing to swear that I had seen a human being. He was sitting at a table with his hand on the key, which was clicking at a terrible rate. I began to grow dizzy and for a time I thought I would fall to the floor. Several times I spoke, but there was no answer. My voice sounded harsh and discordant and a dreadful sensation passed over me. I was about to flee from the room when there was a prolonged flash of lightning, followed by a heavy clap of thunder. This time I saw the man distinctly and I concluded that he was sleeping as he sat in his chair. I walked up to where he sat and spoke to him again and again, but still there was no answer. I had become desperate and I placed my hand on his shoulder with a terrible grip.

"'Wake up,' I said, but the body remained rigid. A vivid flash of lightning told me that I had been mistaken; the man's hand was on the key. I shook him again and this time the body lost its balance and fell heavily on the floor. I started for the door, but reeled and fell in the middle of the floor.

"I don't know how long I lay there, but when I regained consciousness three or four men stood about me. The lamp was lighted and lying stretched at full length on the table under a piece of cloth that had served the purpose of a curtain was the operator—dead.

"I was told several days later that the coroner had returned a verdict of 'death from an electrical shock.'"

Odds and Ends.

Stranger: "Is this building an academy of learning?"

Telegraph operator standing in front of the Main Office when the day force is coming on duty: "Gracious, no! What put that idea into your head?"

Stranger: "I've been watching the young men and women going in. One had a music roll, another had a camera, still another had a mariner's compass; then they come in herds with field glasses, medical books, law books, and the Lord knows what else."

Telegraph operator: "Why, stranger, all these people are telegraph operators on their way to work, but between times are studying other arts and professions. The things they are carrying are dummies and contain a noonday lunch, each. This is a telegraph office."

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Echoes of the Recent Old Time Telegraphers' Convention.

The selection of Salt Lake City and Ogden, Utah, as the next place of meeting of The Old Time Telegraphers' and Historical Association gives general satisfaction among the members residing in the far western and Pacific Coast States, and they feel that the selection of these places for the next meeting is a proper recognition of a large membership residing within the territory named.

Mr. George H. Corse, the president-elect of The Old Time Telegraphers' and Historical Association, is the joint freight and passenger agent of the Union Pacific and Oregon Short Line railroads, at Ogden, Utah. He is an old time telegrapher and one of the most popular men in Utah, and a prince of entertainers. The following telegram was received from Mr. Corse in response to a telegraphic notification of his election as president and read at the banquet: "I desire to thank members for honor conferred upon me. Sorry I am not with you. I hope to be able to give members a good time in 1902."

Mr. Belvidere Brooks, the vice-president-elect, assistant superintendent of the Western Union Telegraph Company, at Denver, Col., is so well known to all the old timers, that it hardly seems necessary to assure the members that the welcome to his territory will be a hearty one.

His telegram of acceptance is characteristic of the man when he wrote: "Extend my thanks and appreciation to members. We will make the Rockies ring with our welcome to you at Zion, Salt Lake City."

President L. B. McFarlane in his efforts to entertain and make comfortable and happy the three hundred visitors at Montreal was indefatigable, and the success in the carrying out of every detail was manifest on every hand. Mr. McFarlane was very ably assisted in his work by James Kent, J. E. Hutcheson, Charles Noble, W. B. Powell, W. J. Camp, F. H. Waycott, J. J. Graham, John Horn, Wm. Mackenzie, James Poustie, D. C. Dewar, A. Walsh, W. G. Slack, H. Bott, W. P. Martin, W. B. Rivet, W. D. Scott, T. Rodger, James Cochrane, S. P. Martin, F. L. Jennings, R. F. Jones, J. F. N. Caisse, J. F. Richardson, James Bayles, and Mayor Prefontaine.

Mr. James Kent, who is the general manager of the Canadian Pacific Railway Telegraph Company, was the recipient of many votes of thanks from those who were fortunate in having the necessary time at their disposal to enable them to accept his courtesies and visit Quebec. Fully one hundred of the delegates visited that ancient capital, many of them remaining over to assist their Canadian brethren in extending a hearty welcome to the Duke and Duchess of York, who reached that city on September 16.

The Montreal meeting of the association will pass into history as the best attended of the entire series of such gatherings, and was a fit recognition of the celebration of its twenty-first birthday. On Friday, September 13, when the news reached Montreal that the condition of President McKinley had become alarming, many of the delegates hastily left the city for their home, the programme for the day as arranged, therefore, was not fully carried out. Only a few of those present visited the power plant of the Lachine Rapids Hydraulic and Land Company, while the theater party in the evening was not as large as expected.

The remarks of Mr. H. P. Dwight, president and general manager of the Great Northwestern Telegraph Company, of Canada, delivered at the banquet, on September 12, have been given much prominence in the Canadian newspapers. They were no doubt due to the high standing of that official. They were as follows:

"I have never until now found it convenient to attend any of the meetings of The Old Time Telegraphers' Association. As it was arranged that the meeting this year should be held in this grand old historic city of Montreal, and as it was here that I begun my career as a telegraph operator 54 years ago, and as the time has arrived when I presume there can be no doubt as to my qualifications as an old timer, I thought it a duty as well as a pleasure to be present on this occasion.

"Looking around the table reminds me of what I have sometimes noticed in connection with some 'young men's' associations, the members of which are often old and gray-headed and sometimes bald-headed men. Our 'old timers,' I should judge by those I see around the table, are some of them what might be called comparatively young men. That, however, depends altogether upon the point of view. When I was 20 or 25 years of age or thereabouts I thought a man of 40 or 45 was a pretty old man, but as I grew older myself I gradually changed my mind as to the old age date until I have now come to think that a man of even 70 or 75 years of age is not a very old man, after all, and a man of 40 or thereabouts a mere boy. The younger men present, however, who may be disturbed as to their qualification for membership in The Old Time Telegraphers' Association on the score of age, need not worry about the matter. You will wake up some morning before long, my young friends, and be surprised to find that you are 70 years of age, and you will begin to think that there must be some mistake about the matter, and you will hunt up the old family Bible to see about it, and you will find the 'Gospel truth.'

"The newspapers are beginning to refer to me as 'the father of Canadian telegraphy,' and I do not hesitate to say that I am very proud to be so called. I confess that I am, in fact, vain of the title. But if I am in any sense 'the father of Canadian telegraphy' the 'grandfather' is Mr. O. S. Wood, who was Professor Morse's first pupil and was the first superintendent of the Montreal Telegraph Co. and who is still living in retirement, a useful and honorable life—85 years of age—one of the truest and best men living, honored and beloved by all who know him, and has been my steadfast friend from the day I first met him 54 years ago until the present time.

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"I said that I was glad to be called 'the father of Canadian telegraphy.' Every man is proud to be the father of a numerous and respectable family; and I can point with pride to the numerous progeny in the business which have grown up under me occupying respectable and prominent positions not only on the lines under my charge throughout the Dominion but on other lines in Canada and in the United States—to say nothing of others who have left the service and are filling honorable positions in other walks of life. It has been a great pleasure and I have been very proud to hear, as I have done from time to time, favorable reports from telegraphic superintendents in the United States of our Canadian operators in their service.

"This is not the time or the place, however, for long speeches, and I have little more to say. I don't know how my brother old timers feel, but for my part I feel a very great pride and satisfaction in having been connected with a service which we may proudly claim to have done more than any other to facilitate the business and promote the comfort and happiness and peace of the world, and I take this occasion to congratulate every old timer present who is still or has ever been connected with the business on such an honorable and useful service as it has been our good fortune to be engaged in.

"I hope our brother 'old timers' from the other side of the line have been pleased with their visit to the Dominion and to Montreal. We think we have one of the best countries on the face of the earth, and I will not say the best, because I would not like to be lacking in politeness to our friends by saying that we have a country better than their own. These international gatherings serve a much wider purpose than merely social intercourse in promoting the friendly relations between Canada and the United States. We are proud to know that a Canadian physician and a Canadian nurse are at the bedside of President McKinley. It is pleasant to know there is such a friendliness and that it is constantly increasing. In fact, 'Uncle Sam' and our 'Lady of the Snows' are getting to be very intimate, and, judging from all that we see, the more they see of each other the better they like each other.

"What the ultimate result may be, it is hard to say, but it would not be at all surprising if, sooner or later, 'Uncle Sam' might be found to have very serious intentions—probably a proposal may be made. If matters ever reach such a point I think I can tell pretty well what the reply of our 'Lady of the Snows' is likely to be. I fancy it would be something to this effect: 'Uncle Samuel, you the very good-looking and are very smart and you are prosperous and all that, and I feel greatly flattered, and I have no hesitation in consenting to be your sister.' The fact is that 'Uncle Sam' and our 'Lady of the Snows' are getting to be about as familiar and friendly as they can be, without occupying the same apartment, but I am afraid that 'Our Lady of the Snows' will draw the line there.

"Thanking you for listening so patiently to these disjointed remarks and wishing you all a safe journey home, with pleasant recollections of this morning, I will take up no more of your time."

Mr. H. P. Dwight was heard to remark that he was delighted with meeting so many of the fraternity and that the banquet was one of the most enjoyable he had ever attended. He was about the corridors of the Windsor Hotel until nearly three o'clock in the morning following the banquet, shaking hands and having cordial chats with delegates.

Mr. A. Pope, superintendent of the Great Northwestern Telepraph Company, and Mr. T. J. Mahon, manager of the Canadian Pacific Telegraph Company, of Quebec, devoted considerable time in showing the visiting members of The Old Time Telegraphers' Association the interesting places in that quaint old city.

It would be amiss not to mention the valuable services rendered by L. J. McMahon, President McFarlane's stenographer, who had charge of the information bureau. He was always affable and courteous, even under the most trying circumstances. The New York delegation presented him with a handsome umbrella to commemorate the event.

Mrs. McFarlane, the wife of the president, and chairman of the Ladies' Reception Committee, was on hand during the three days of the convention, and was not behind the president in her endeavors to make it pleasant for the visiting ladies in every possible way. Mrs. James Kent, Mrs. W. B. Powell, Mrs. W. J. Camp, Mrs. W. D. Scott, Mrs. H. Bott, and others, all assisted Mrs. McFarlane in her arduous yet pleasant duties.

At Mount Royal in reply to Mayor Prefontaine's welcoming address, Mr. Walter C. Burton, of New York, responded in a manner that made the strangers ask, "Who is Burton?" Mr. Burton's speech on this occasion was in excellent taste and won for him many plaudits, as also was his concluding speech as toastmaster at the banquet. He was at all times and places ready with remarks that made the New York delegation proud of having him as a member. His efforts added much to the dignity and pleasure of the occasion.

Mayor Prefontaine presented handsome bouquets of flowers after refreshments were served on Mount Royal, to Mrs. McFarlane, of Montreal, Mrs. S. A. D. Forristall, of Boston, Miss Fanny Meyer, of St. Louis, and Mrs. John Brant, of New York.

While Mr. Wm. Maver, Jr., was visiting the Great Northwestern telegraph office, he was shown by Manager W. B. Powell a messenger boy's book that Mr. Maver had used over thirty years before while a messenger in that office. Mr. R. C. McDonald, of New York, another former Montreal messenger boy and operator, was warmly greeted by many who had served with him as messengers and operators in the long ago.

There was probably not a more delightful person in attendance than Mr. A. M. Mackay, super-

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intendent of the Anglo-American Cable Company, at St. Johns, N. F. Though he has seen fifty-one years of active service he is as sprightly as a man in his forties. Mr. Mackay claims to be one of the first, if not the first, sound reader.

A delightful little poem paraphrasing Hiawatha was received by Secretary Brant from Mrs. H. A. Tuttle, Minneapolis, Minn., by wire. It is unique in its way and notably characteristic of that charming lady's versatility.

Mr. M. J. O'Leary and wife, of New York, after attending the reunion, took a trip to Halifax, N. S., where Mr. O'Leary formerly served as a soldier in the British Army.

Mr. Sam'l R. Crowder, of Richmond, Va., with his guitar and his gift of song, was an especially welcome guest, contributing much on many occasions to the pleasure of the company. He accompanied the New York party in its special car, and his efforts to please were fully appreciated.

The New England contingent of twenty-five traveled in a special car from Boston over the Boston and Maine and Central Vermont railroads. A special car containing the Chicago members, thirty in number, went over the Grand Trunk to Kingston, and then journeyed by boat down the St. Lawrence to Montreal.

Had not the shooting of President McKinley prevented many from going to Montreal, from distant places, this would have been the banner meeting in point of numbers. While it rained all day Wednesday and Thursday, September 11 and 12, the bad weather did not materially interfere with the carrying out of the prearranged programme. The serious condition of President McKinley dampened the spirits more than the inclemency of the weather.

Mr. C. P. Bruch, assistant general manager, and Mr. Thomas E. Fleming, special agent of the Postal Telegraph-Cable Company, New York, were warmly welcomed by their many friends in Montreal. It was greatly regretted that they could not remain to attend the banquet.

Mr. Thomas Ahearn, of Ottawa, member of the Executive Committee, was about the Windsor Hotel all day Thursday greeting his many acquaintances from the States. Mr. Ahearn was one of the galaxy of star operators, so noted, at 145 Broadway, New York, in 1874.

Vice-President Hutcheson, of Ottawa, Ont., one of the leading members of the celebrated Canadian Rifle Team, which carried off the laurels at the Seagirt, N. J., contest, early in September, cancelled his engagement with the team in order to enable him to be present at the reunion, and so to contribute his share in entertaining the visitors.

To Mr. S. A. D. Forristall, superintendent of telegraph of the Boston and Maine Railroad, and Mr. M. Magiff, superintendent of telegraph of the Central Vermont Railroad, the thanks of New England members are due for courtesies extended.

W. H. Harper, Chatham, Ont.; H. B. Spencer, Ottawa, Ont.; W. F. Hitchings and wife, Boston, Mass., were present at the reunion, but their names were omitted from the printed list.

Members should feel grateful for the many courtesies granted by the following-named railroads: New York Central, Pennsylvania, Southern, Grand Trunk, Canadian Pacific, Boston and Maine, Central Vermont, Buffalo, Rochester, and Pittsburg. The railroad companies on these occasions have always been liberal in extending favors to members, and a full recognition of such courtesies should be given when opportunity offers.

CORRESPONDENCE.

Why Not Ethergraphy.

Editor TELEGRAPH AGE:

On page 380, TELEGRAPH AGE, September 16th issue, I find an article taken from the New York Times, which is at war with the term "Wireless Telegraphy." I quite agree with the writer that the term "Wireless Telegraphy" is illogical and distinctly a "misnomer." Now then, if "Ether" is supposed to fill all space, and "Graphy" means to write, why wouldn't "Ethergraphy" be a proper term for Marconi's great discovery, as it is believed by a great many, if not all electricians, that the ether is the conductor of electrical waves, or that the electrical current follows the etheric waves. If the ether theory be true, and we know of no reason to doubt it, then in using Marconi's system of Morse signals without a main line conductor, certainly the dots and dashes are carried along by the "etherical" conductor, which constitutes writing with the aid of the ether; hence the deduction, "Ethergraphy."

Yours very truly,

JAMES B. DILLON.

Louisville, Ky., September 23.

Balancing Quadruplexes and Duplexes.

Editor TELEGRAPH AGE:

Referring to my article in the AGE of August 1, on "Balancing Quadruplexes and Duplexes," and the observations under the same heading in the issue of September 15, permit me to say that in the early history of polar working, probably about 1883, this office experienced considerable annoyance in having to reverse relays and polechangers daily, to work North and South during the day and Western circuits at night, which I made the subject of a complaint, with the suggestion that all polar duplex and quadruplex instruments be required to be set up so that when at rest, with keys open, they would send copper battery to the line.

This suggestion passed through the "Circumlocution Office," was approved, and we were informed that instructions had been issued that all sets should be made to conform to this regulation.

If a set should be connected up the reverse of this regulation, the directions given in my article would, of course, work backwards, as Mr. Grandy says; but I assume that the rule is being followed.

Respectfully,

E. L. DUGBEE.

Washington, D. C., September 19.

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LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of three cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.]

CINCINNATI, O., POSTAL.

S. W. Bitler has been appointed manager at Findlay, O., vice E. A. Meyer, who has been transferred to Cleveland Postal operating room.

E. G. Bronson, formerly of Paris, Ky., has been appointed manager at Georgetown, Ky.

F. B. Barnard has succeeded W. M. Maffet as manager of Cynthiana, Ky., office.

J. E. Fulton, who has been employed in Cincinnati, has been promoted to the managership at Steubenville, O., vice E. P. Ohmer, resigned.

Superintendent E. W. Collins has spent most of his time lately in Canton on account of the President's funeral.

Audit Clerk C. D. Ely, of the superintendent's office, has returned from a week's vacation on the lakes.

Recent Visitors: Messrs. E. W. Blakeley, manager at Columbus, O.; S. G. Bentley, manager at Lexington, Ky.; E. R. Collins, manager at Zanesville, O., and G. A. Schwenke, manager at Richmond, Ind.

J. Dolin, manager at Wellington, O., was struck and killed by a Big Four passenger train on September 16. The Postal Company loses a faithful employe.

E. E. Dougherty is the manager of the new Sellersburg, Ind., Postal office, and is working up quite a business with Cincinnati.

K. C. Bedford was acting manager at Lexington, Ky., during Manager S. G. Bentley's two weeks business trip.

Manager C. E. Sawtelle, accompanied by his wife, left September 16 for a two week's trip in the East. He first went to Philadelphia, thence to Boston, and afterward to New York, returning home by way of Buffalo, taking in the Exposition and Niagara Falls.

Fenton T. Bott, Mr. Sawtelle's assistant, acted as manager during his chief's absence.

SAN FRANCISCO, CAL., WESTERN UNION.

Very few offices in the United States can boast of the rapid growth, increased facilities, and large development in business that this office has experienced in the past few years.

The opening of the Klondike a few years ago was the starter, followed by the Spanish war, the Philippine war, the Chinese war, all directly affecting this part of the country, has almost doubled the business at this point.

The late arrival of J. C. Barclay, of Chicago, electrical engineer of the company, to superintend the installing of an extensive dynamo plant, necessary for the increased number of overland wires lately added to the already large syetem, more than ever demonstrated the growth of the office, and when it is completed we will have the latest and largest up-to-date plant in the country. The office has been enlarged until it is almost twice its original size.

Mr. C. F. Mauntler, dynamo expert of Chicago, assisted by Messrs. Pittinger and Coop, of San Francisco, are doing a very fine piece of work in installing the plant, which will be in full operation by the time this article is published.

Arrivals: Messrs. Decatur, Mellen, Cronan, Thompson, Fogarty, Pedley, McKay, Bibb, Corcoran, Berg, Andrews, Hunt, Bell, Miss Donnelly, Miss Kottinger, Miss Connelly, Mrs. Saxton.

Departures: Messrs. Stevenson, Dogge, Hanson, Brooks, Simon, Tompkins, Brophy.

On Vacations: Miss Foster, Miss Samud, Miss Sanquist, Miss Rood, Messrs. Moore and Crow.

Returned from Vacations: Messrs. Mobley, Fisher and Weiler, Miss Yoakum and Miss Cummings.

On Sick List: Mr. Luithle and Miss Wexall.

Mr. Dorgan has been at Hotel Del Monte during the rush occasioned by the meeting of the Country Club.

Mr. Horsman has been helping out at the Southern Pacific office the past month.

The San Francisco Western Union boys have a crack base ball nine, which promises to make a clean sweep of everything in that line. A match game with the messengers was won by the operators, and a match with the Southern Pacific operators is the talk of the future.

Receiving jobs for some of the boys who have game fingers from contact with the ball is in order.

ATLANTIC CITY, N. J., POSTAL.

The season just closing has been the most prosperous ever experienced in the history of the company in this place. The increase has been marked in every department.

Seven regular men were required at the main office alone to handle the business during the busiest months, while on the outside, a total of 23 branch offices were operated.

A new departure of the District Department is the operation of a Watchman's Clock Circuit, connecting all the beach-front hotels.

As a climax to wind up the season, a great scoop was made at the Northfield Golf Links, where the largest amount of press matter ever handled at Atlantic City by this company was accomplished under the able management of Mr. Geo. W. Phillips, assisted by Messrs. Chas. P. Appel and Thos. F. Carroll. A daily total of from sixty-five thousand to seventy-five thousand words was the average during the week of the golf meet.

The opening of the season found the Postal headquarters most advantageously situated. The new location being directly opposite the City Hall and the Pennsylvania Railroad depot. The office is fitted in the most modern style in every department. Beside the single sets, three quad sets, one repeater and a phonoplex are installed. A com-

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plete dynamo plant has been added, furnishing all the necessary battery required for the local and through circuits.

A neatly encased switchboard supplied with all up-to-date features, occupies a conspicuous place in the center of the office.

The massive oak counter, operating tables and other office furniture present a harmonious appearance, which, together with the wall and ceiling and window decorations present a decidedly attractive and inviting aspect.

Manager Phillips is desirous that too much credit for the season's fine result should not be placed entirely on him, as the co-operation of a faithful force was a great factor in the accomplishment of the work.

MONTREAL, QUE., GREAT NORTHWESTERN.

Miss Ada Beck has returned from her vacation at Cape Cove, and Chief Operator Walter Graham is back again after an absence of two weeks passed at Prescott, Ont. Frank Hall has been promoted to day operator on the Canadian press wire. John Baker has resigned and accepted a position in the delivery department. Miss Malvina St. Pierre, from New York, is back again on our staff. Arthur Ross is another addition to the force. James Grace has become the father of a boy. Night Chief Noble is on his vacation, his place being filled by Wire Chief R. E. McCord.

PHILADELPHIA, PA., WESTERN UNION.

From 3.30 to 3.35 on the afternoon of September 19, the day of the President's funeral, the click of the sounder was not heard in this office. The silence was very impressive, every head was bowed reverently and many tears were dropped to the memory of the late President. Every one wore a badge of mourning, the ladies especially, each one wearing a white waist adorned with black.

Messrs. Durnin, Daily, McGrorty and Stoddard wish to return thanks through the AGE to the Buffalo Western Union officials for the kind and courteous treatment received while with them.

Mr. John P. Welsh, for many years chief clerk at the Western Union office, 307 Walnut street, was married September 18 to Miss Louise Borneman, a Kensington belle. A silver dinner set from his fellow employees was one of the many handsome presents received.

Resignations: Messrs. Shuster, Hockery, Beasley and McIntyre.

Arrivals: Messrs. Morris and Bleakney.

PHILADELPHIA, PA., POSTAL.

What turned out to be a most impressively solemn although entirely informal Memorial Service took place in the large operating room, in honor of our martyred President William McKinley, on the afternoon of September 19, during the five minutes from 3.30 to 3.35 P. M. when, at the instant the circuits were cut out and a most awful stillness pervaded the place, Chief Operator Stimpson requested that everybody should rise; all heads were then bowed a moment in silent prayer, a quartette of operators standing on the chief's platform most beautifully sang two stanzas of the President's favorite hymn "Lead, Kindly Light," after which the assemblage, which included representatives from every department, unitedly sang two verses of "Nearer, My God, to Thee," at the termination of which the instruments resumed their noisy clatter.

"Break! Break!" will soon be eliminated from the vocabulary of receiving operators in this office. The newest wrinkle which makes it unnecessary for the receiver to call out these harsh (?) words for the benefit of the sender is the installation of a button switch on his side of the table, which, by simply pressing, cuts the sending operator's sounder in on the receiving local, thus enabling him to read the distant receiver's breaks with ease and promptness.

The most important change recently effected was that of Mr. Richard Ziegler to be manager at 49 South Third street, vice Mr. O. H. Phillips, appointed manager at the North American office. Mr. James F. Haughton succeeds Mr. Ziegler on the Delawares.

Among the latest arrivals are Messrs. C. E. Cox, from the Blue Grass Country; Fred. E. Brown, Geo. Carroll, E. Frazer, W. J. McIntyre, Joseph Hockery, W. J. Murray, Chas. A. Greene, A. B. Jester, and E. W. Miller.

Mr. J. J. Toole, of the South Front street office, has resigned to accept a better position with a wool broker. Miss Morris, of the same office, temporarily succeeds Mr. Toole, her regular place being filled by extra men from the main office.

Chief Clerk Shin had a rather unsatisfactory experience on his vacation trip to Buffalo and the Falls. Nearly the entire time was marred by stormy weather.

Mr. Robert Robinson, manager at Lancaster, Pa., accompanied by Mrs. Robinson, were among the Pan-American-Niagara visitors from this vicinity.

The sincere sympathy of this entire office is extended to our friend Mr. Elmer Locke, whose wife died on the 20th.

Manager C. E. Sawtelle, of Cincinnati, Ohio, was a recent visitor.

Mr. Bud. Gagen has our renewed sympathy; this time on account of the death of his mother.

Plenty of hope for the man that's losing his grip. The 20th Century Key is a friend indeed. Terms and particulars cheerfully furnished. Leo Miller.

KANSAS CITY, MO., POSTAL.

Night Chief Charles Falk has returned to duty after an absence of two weeks caused by sickness. Traffic Chief Thomas Ingram is confined to his home by sickness. Manager A. B. Richards was called to Bowling Green by the sickness of his mother.

L. B. Tobin is away on his vacation. He was the recipient of a silver match case recently, presented by Kansas City and St. Louis newspaper men who were sent to Holden, Mo., to write up the

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capture and probable burning of a negro. Mr. Tobin went with the party, cutting in and sending their stuff from points where clues had been found. The newspaper men appreciated the up-to-date way in which the situation was met, because they were enabled to get their matter in hours before they could have done so had they depended on the railroad operators at wayside stations. Newspaper men in this section usually take little heed of such conveniences as the Postal afforded them, as they take everything for granted, hence their gift to Mr. Tobin is all the more an indication that they were especially well pleased with the service.

Mr. Clyde Edwards is visiting his old home in Bowling Green, Mo.

Manager E. M. Cross, of Reading, Kan., was a recent visitor to the operating room.

CHICAGO, ILL.

Typewriters bought, sold, rented and repaired. Renting a specialty. Also Agency for "Telegraph Age." Telegraphers' Typewriter Co., Room 5, 122 La Salle St., Chicago, Ill.

WESTERN UNION.

James Cummins, of the St. Paul division, who has been in the service here for many years, most of the time in the capacity of division chief, has resigned to accept a position with the Long Distance Telephone Company. His leavetaking was made the occasion of the presentation, on behalf of the force, of a diamond ring, by Mr. Johnson, his successor.

Edward Brandon has resigned to enter other business.

The marriage of Dennis O'Connell to Miss Toomey occurred lately. The pair were the recipients of many beautiful presents from telegraph friends.

Messrs. Byrd and Whalen, two of our finest operators, were detailed for service at the golf tournament grounds at Blue Island, Ill.

E. B. Thompson is seriously ill with appendicitis and is receiving treatment at the hospital. The doctors, however, hope for his recovery.

Mrs. Asmussen has the sympathy of all in the illness of her young daughter.

Assistant Division Chief Frank Richardson has returned from a two week's vacation.

BUFFALO, N. Y., WESTERN UNION.

The eyes of the world were centered on this city during the week beginning September 6. It was on Friday that our beloved President of the United States, William McKinley, was stricken down by the bullet from a pistol in the hands of a cowardly assassin while the President was holding a public reception in the Temple of Music at the Pan-American Exposition grounds, from the wounds of which he succumbed just one week later. The intervening days, from the 6th to the 16th, when the President's remains were removed from this city, will go down in history as the busiest in the annals of the telegraph in Buffalo. On the night of the day of the assassination when the President was removed to Mr. John G. Milburn's home, where Mr. and Mrs. McKinley were the honored guests, this company erected two wires to the Milburn house stables, and established direct communication with the White House in Washington, D. C., the construction work being accomplished in fifty-five minutes. The wires were immediately turned over to bulletin and United States Government service and Secretary Cortelyou, and were thereafter in constant use, being handled by Thomas E. Elder and M. Williams. At daylight the United States Government troops erected a tent at the southwest corner of Delaware avenue and Ferry street, into which the White House wire was moved. Manager J. W. Tillinghast then ordered six more wires, which were erected and connected up in a large hospital tent in a vacant lot opposite the Milburn house. This was called the press tent and where much press matter was ably handled in charge of Manager C. C. Osterhout and Operators W. E. Durnin, J. H. McGrorty, R. P. Stoddard, of Philadelphia, and James Regan and W. Pryor of Buffalo, all of whom handled press matter in direct communication with the newspaper offices of other cities, there being seventy-nine out of town newspaper representatives, several metropolitan journals having as many as six men writing report. Manager Tillinghast, foreseeing the great amount of work, called for operators from some of the larger cities, and during the next day the following reported to Chief Operator Frank Kitton:

From Washington, Mr. P. E. Brown, Mrs. M. D. Brown, W. E. Pierce; Boston, R. A. Boyle, J. J. Hannon; Baltimore, C. E. Clagett, J. R. Topp, F. Louck, A. Gentry, J. P. Croghan, A. J. Clark; Philadelphia, W. E. Durnin, R. P. Stoddard, J. H. McGrorty, J. H. Dailey; Syracuse, F. J. Stafford, J. B. Wooster, C. J. Turcott; Columbus, O., C. H. Nowell; Cincinnati, L. S. Miller, V. W. Miller, J. N. Jacobs, J. H. Hohnstadt; Chicago, W. B. Paddock; St. Louis, J. L. Rapp, B. F. Lamar, H. A. Mansfield, A. Brooks, W. A. Boyer, C. A. Willis.

It was without doubt the most trying situation in which telegraph employees in Buffalo had ever been placed. It was seriously felt by those on duty at

There is More Catarrh

in this section of the country than all other diseases put together, and until the last few years was supposed to be incurable. For a great many years doctors pronounced it a local disease, and prescribed local remedies, and by constantly failing to cure with local treatment, pronounced it incurable. Science has proven catarrh to be a constitutional disease, and therefore requires constitutional treatment. Hall's Catarrh Cure, manufactured by F. J. Cheney & Co., Toledo, Ohio, is the only constitutional cure on the market. It is taken internally in doses from 10 drops to a teaspoonful. It acts directly on the blood and mucous surfaces of the system. They offer one hundred dollars for any case it fails to cure. Send for circulars and testimonials.

Address, F. J. CHENEY & CO., Toledo, O.

Sold by Druggists, 75c.

Hall's Family Pills are the best.

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the Milburn camps. They worked eighteen to twenty hours out of the twenty-four each day, and under conditions that were extremely trying. They were continually surrounded by newspaper men clamoring to have their press matter rushed first. The weather was of the worst sort, windy, rainy, and cold, making it necessary to resort to oil stoves and feet warmers. Those of the out-of-town operators who were detailed to the camp suffered considerably. After the work was finished the newspaper representatives extended a hearty vote of thanks for the able way and promptness in which their matter was handled.

Owing to the Pan-American Exposition, new copper wires had been connected up to New York, Chicago and Pittsburg, more operating tables installed and operating force doubled. Notwithstanding all this the night force worked extra day service, and when the report of the assassination of the President was flashed and with great influx of messages and press matter the offices were nearly swamped. Great credit is due and has been given to Chief Operator Kitton, who worked day and night, ably assisted by Traffic Chief Charles W. Sears.

All the force, and more especially the out-of-town operators, have freely expressed their sentiments of gratitude and appreciation of the kind words and politeness given them by Mr. Kitton, and for his thoughtfulness in caring for their every want and comfort during this trying ordeal. Mr. James Corcoran, the night manager, with his able assistants, C. M. Frost at the board, and Peter J. Haley at Wheatstone and repeater department; Joe Anderson, all night chief, assisted by Harry Williamson, come in for a large share of the great credit given the record breaking week.

There were over one million words of press matter handled, and a corresponding increase in messages, or an exact increase of fifty-two per cent. in one week's time.

Six loops were connected up from Ellicott Square main office to Court House, reporting the trial and sentencing of President McKinley's assassin. The office was in charge of Chas. C. Osterhout, with Operators Thos. Elden, Wm. Evans, Thomas Davidson, and U. Gessim.

Edward H. Wade has returned from St. Louis.

BOSTON, MASS.

Typewriters for sale, to rent and repaired. Remington, Smith, Densmore and all makes sold or rented on easy monthly terms to telegraphers. Send for samples, catalogues and full information to E. M. Bennett, Manager, The Typewriter Exchange, 38 Bromfield Street, Boston, Mass.

WESTERN UNION.

Geo. S. Hearon and Charles L. Mooney have returned from Woods Hole Junction, where they have been working all summer, Mr. Hearon going on night force and Mr. Mooney to the extra list.

James O'Neil, a well known operator, for many years with the Postal Company, and during the last two years with the Western Union, died at his home in Dorchester, Mass., recently.

William Carrigan, chief error clerk of this office, died of consumption recently at his home in Chelsea, Mass. He was connected with the Western Union for over ten years.

James West has been appointed chief error clerk vice William Carrigan, deceased; David Horan, vice West.

Mr. Jas. Collins is the happy father of a daughter.

Traffic Chief Jas. A. Dougher has left on his vacation.

Mr. J. C. Smith is off on two weeks' leave.

Returned from vacations: Miss Sadie McCarthy, stenographer of the superintendent's office, from an outing of two weeks passed in Maine; Geo. W. Tracy, from a two week's trip in the Canadian Provinces, and Mr. W. F. Knowlton, assistant traffic chief. During the absence of the latter, Mr. A. D. Brewer filled his place.

NEW YORK CITY.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left on the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all makes—sold, $1.00 per week. B. L. Brannan, 195 Broadway, New York.

Desirable Real Estate.

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East Orange, N. J., 181 North Nineteenth street: 2½-story, frame dwelling, all improvements; 8 rooms and bath. Lot, 25 x 125 feet. Price, $3,700.

Cranford, N. J.: Three 2-story flats, 5 rooms on each floor. Lot, 60 x 100 feet. Price, $6,000. Pays 8 per cent. as an investment.

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WESTERN UNION.

One of the notable incidents on the day of President McKinley's burial was the wearing of black and white only, by nearly every one of the lady operators and clerks. From 3.30 to 3.35 P. M. not a message was received or sent from this office.

On account of the shooting of President McKinley and the great pressure of business, only Senator Ives and John Brant could be spared from this office to attend the reunion of old timers at Montreal.

Recent visitors: F. P. Ainsworth, River Falls.

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Wis.; W. I. McQuown, of the vice-president's office, Pennsylvania Railroad, Pittsburg, Pa., and P. J. Feeney, of the Vacuum Oil Company, Bangor, Me.

Mr. E. P. Griffith, general wire chief, has returned from a trip through Canada, where he visited Montreal, St. John, Canso, Quebec, and North Sydney.

Mr. W. A. Van Orden, assistant general wire chief, has also returned from his vacation.

Over 180,000 messages were handled in this office in one day recently.

Mr. W. F. Traphagan has resigned to go to Oregon, where he has mining interests.

Superintendent M. W. Ravens wishes to thank his many friends for their kind expressions of sympathy in the death of his sister, who died suddenly on September 7.

Miss Ella Wilson has been appointed traffic chief, city line, in place of Miss Nellie Flynn, who has resigned on account of illness.

"Senator" Wm. L. Ives has been elected a delegate from the 16th Assembly Disrtict, Borough of Brooklyn, to the Assembly Convention to be held October 3, next.

Mr. C. J. Lawson has been ill with inflammatory rheumatism.

All vacations were cancelled until after the yacht races.

Particularly noticeable among those for their beautiful tan on return from summer office and vacations are Miss Jennie Powell, Miss Emma Ganong, and Miss Gertie McMullin.

On sick list: Miss M. Brown, C. E. Fredking, H. W. Sauer, Mrs. C. A. H. Mauer, Miss Nellie T. Calver, W. H. Gunning.

Chief Operator M. J. McGannon has returned after an illness of a week.

Returned from summer offices: J. J. Phelan, Thomas Nolan, E. J. Oakley, H. Smith, H. B. Rogers.

F. D. Stevenson has been appointed traffic chief on city line, nights.

R. C. Edwards resumes work on regular day force.

E. G. Hahenstein appointed junior operator.

The father of Miss Mamie McGoldrick, who has charge of the error correction slip book, died suddenly September 25. The sympathy of all is extended.

Appointed to waiting list: J. D. Daggett, A. V. Winbourne, J. A. Melody, J. G. Hoffman, D. J. Condon, J. Smith, O. Gedney, E. C. Chamberlain, R. M. Telschow, W. A. Young, T. F. Carroll, M. Connolly.

Resignations from regular day force: A. Normington, H. Kleinman; from split trick, J. F. Fitzpatrick; from regular night force, Harry P. Cunningham, who has been on the night force uninterruptedly for nearly thirty years.

POSTAL.

The following letter was written by Miss Emma Heckel, of this office: "For several months my arm has caused me much pain when sending. A few weeks ago I tried the 20th Century Key, and after using a few days, I experienced no difficulty in sending, and my arm has not troubled me in the least. On the contrary, my grip has greatly improved. Believing that many operators are seeking relief from loss of grip, I strongly advise the use of the 20th Century Key."

Born—To J. F. Skirrow, assistant manager of this office, on September 22, a son.

Mr. J. F. Skirrow has been a very busy man of late arranging the necessary electrical details for the transmission of a complete and prompt report of the yacht races. He has devised an ingenious system of portable quadruplex sets, dynamos and engines, which will greatly facilitate matters in many ways.

Since the burial of President McKinley business has resumed its usual normal state, but still continues very heavy, and there is no lack of "extra" for those who are looking for it and for some who are not. The yacht races added greatly to the already heavy volume.

Returned from vacations: Manager Charles Shirley; Wire Chief F. E. McKiernan; City Chief S. B. Haig; Leased Wire Chief G. F. Randolph; Operators S. J. Naftal, Robert Perrin, R. F. McKune, Jas. L. Mingle, Mrs. A. C. Eckman, V. A. Eagan, Miss E. A. Tyrell, Geo. McGill, and S. Fitzgerald.

Arrivals: J. T. Kelley, T. L. Flynn, W. C. Fenelon, W. G. Metzler, G. J. Bruhns, T. Tarangiali, Mrs. Stetson, D. McKee, A. A. Topping, C. P. Mooney, Miss H. S. Ford, and Mr. J. A. Garland.

BALTIMORE, MD., WESTERN UNION.

Messrs. Charles E. Clagett, Alfred S. Gentry, John P. Croghan, James R. Topp, A. J. Clarke and Fred. Louck were sent to Buffalo on hurry orders on September 7. They remained there until the 16th, and then went direct to Washington to help out for two days. They all made great records.

Mr. W. C. Hurlock is a recent arrival.

Mr. Morris Fox has resigned to go with a broker.

Mr. Otto E. Scherf, formerly of this city, but recently of New York, has returned here to accept a position with a broker.

Mr. Charles E. Sawtelle, manager of the Postal at Cincinnati, O., was a recent visitor.

Associated Press Annual Meeting.

The annual meeting of The Associated Press took place in New York on Wednesday, September 18, President Frank B. Noyes presiding. Aside from some discussions of a routine character, there was an election of five directors and the passing of resolutions with regard to the assassination of President McKinley. Clark Howell, of the Atlanta Constitution, was unanimously elected to fill the vacancy caused by the resignation of Don C. Seitz, of New York.

The other four members of the board whose terms had expired, Frank B. Noyes, Washington Star; Albert J. Barr, Pittsburg Post; Charles W. Knapp, St. Louis Republic, and M. H. DeYoung, San Francisco Chronicle, were unanimously chosen to succeed themselves.

The hold-over directors are: Stephen O'Meara,

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Boston Journal; Victor F. Lawson, Chicago News; Harvey W. Scott, Portland Oregonian; Thomas G. Rapier, New Orleans Picayune; Herman Ridder, New York Staats Zeitung; Whitelaw Reid, New York Tribune; W. L. McLean, Philadelphia Bulletin; George Thompson, St. Paul Dispatch; Charles P. Taft, Cincinnati Times-Star, and C. H. Grasty, Baltimore Evening News.

The following advisory boards were elected:

Western Division.—General Harrison Gray Otis, Los Angeles Times, chairman; secretary, S. A. Perkins, Tacoma News; J. J. Lambert, Pueblo Chieftain; P. H. Lannan, Salt Lake Tribune; A. J. Blethen, Seattle Times; W. M. Miller, Butte Miner.

Central Division.—Thomas, Rees, Springfield, Ill., State Register, chairman; Lafayette Young, Des Moines, Ia., Capital, secretary; D. R. Anthony, Leavenworth, Kas., Times; Edgar W. Coleman, Milwaukee, Wis., Herold; W. D. Brickell, Columbus, O., Dispatch.

Southern Division.—E. B. Stahlman, Nashville, Tenn., Banner, chairman; H. H. Cabaniss, Atlanta, Ga., Journal, secretary; W. J. Crawford, Memphis, Tenn., Commercial-Appeal; Josephus Daniels, Raleigh, N. C., News and Observer; R. G. Lowe, Galveston, Tex., News; Frank P. Glass, Montgomery, Ala., Advertiser.

Eastern Division.—W. C. Reick, New York Herald, chairman; J. W. Bailey, Philadelphia, Pa., Record; W. H. Mathews, Rochester, N. Y., Democrat and Chronicle; Charles H. Taylor, Jr., Boston, Mass., Globe; P. C. Boyle, Oil City, Pa., Derrick.

A meeting of the new board of directors was held on September 19 in the general offices of the association, No. 195 Broadway, New York. The session was devoted to the election of officers for the ensuing year, including an executive committee, and the usual examination and discussion of the affairs of the association.

The officers elected are: Frank B. Noyes, Washington Star and Chicago Record-Herald, president; Horace White, New York Evening Post, first vice-president, succeeding Clark Howell; William R. Nelson, Kansas City Star, second vice-president, succeeding Thomas M. Patterson; Melville E. Stone, secretary; Charles S. Diehl, assistant secretary, and V. P. Snyder, treasurer.

Executive committee: Charles W. Knapp, Stephen O'Meara, Victor F. Lawson, Whitelaw Read, and Frank B. Noyes.

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Some Back Dates.

BY WUNUVUM.

Tennyson must have had a vision of wireless telegraphy when he wrote "Break, break, break" to the waves.

May be that one reason the "average slips" so seldom agree with the number sheets is, that a good operator doesn't want to be mistaken for an expert accountant and get relegated to a book-keeping department.

Some of the difficulties, perhaps, of comprehending the intricacies of wire testing are that when a wire "goes down" we are told that it has "gone up," and when it "goes up" a test usually reveals that it has "gone down."

"How is it," said Stoops, "that cigarette users never attain high positions in the telegraph business?"

"I suppose," said Loops, "that their 'pipes go out' too early in life."

This was his explanation of a positive unsteadiness in his gait when he came on duty: To be on time, he had asked an Italian barber to shave him in ten minutes. Six minutes and he was out of the chair, he said, but so dizzy over the lightning-like performance on his face that when the office was reached he still staggered and was sent home.

"I am too tired to sit up," said the weary man as he applied to get off. "Too tired to sit up?" repeated the sympathetic chief, "then sit down awhile!"

The "check boy" is most interesting when he is new—before he knows "all about it." The latest arrival wanted to route Two-mile Bay to Three-mile Creek, because, he said, from the names he thought they were only a mile apart.

"Can't that guy count dots?" asked the lunch relief of the man beside him regarding a western sender.

"Oh, yes," said the other, "but he's got the ague, and this is his day for chills, so, when he comes to a letter P or a figure 6 he just grips the key and lets things shake to a finish!"

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for a sample copy of the Convention number, September 1.

J. R. Baskerville is desired as witness to give evidence. His present address will be gratefully received. Eaton & Lewis, 44 Broad street, New York city. (Adv.)

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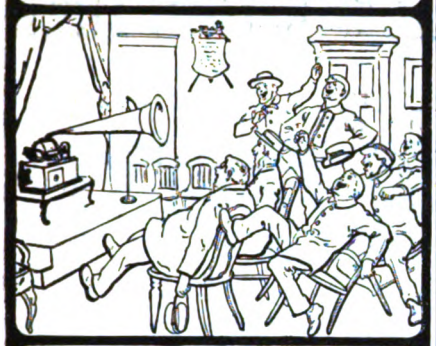
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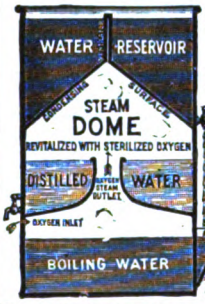
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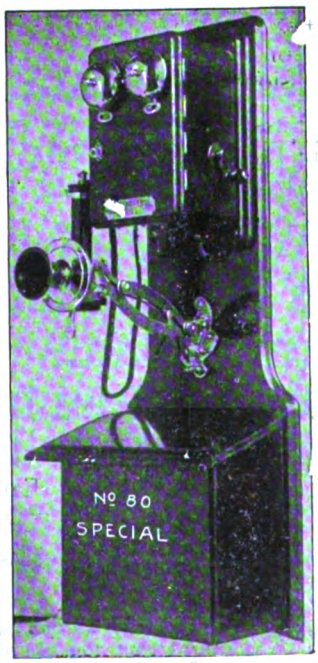
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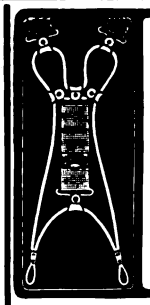
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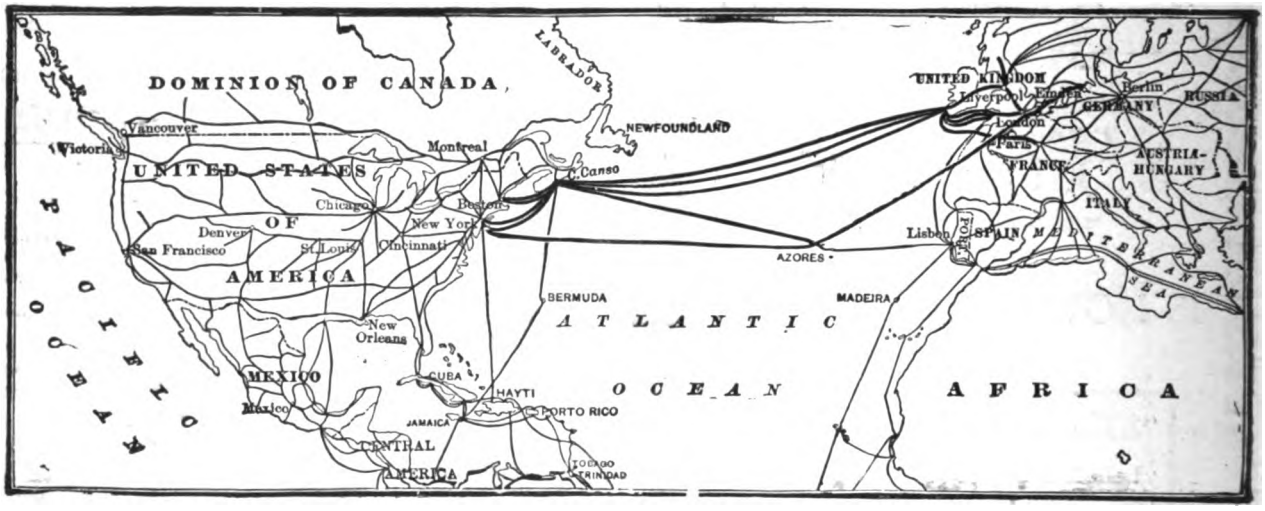
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The officers of the Postal Telegraph-Cable Company and of the Commercial Cable Company deny emphatically that either company is contemplating any such combination and state that the control of the Postal Telegraph-Cable Company and of the Commercial Cable Company is not for sale.

Very respectfully,

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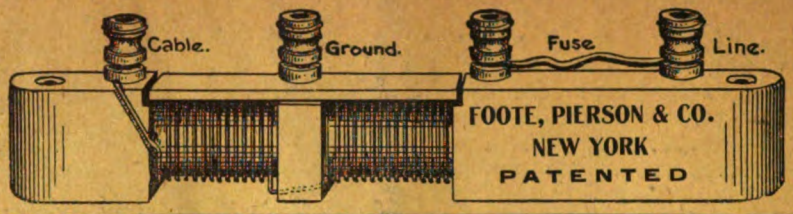
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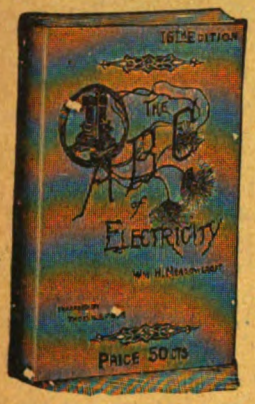


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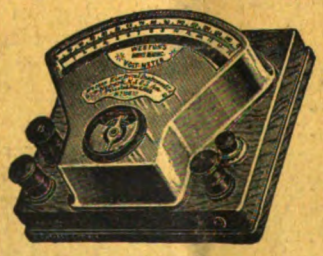
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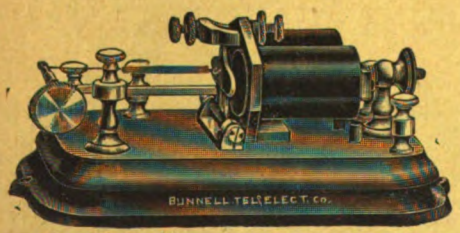
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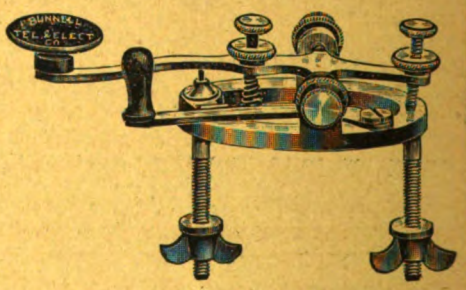


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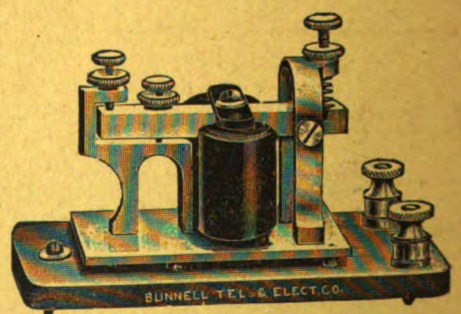


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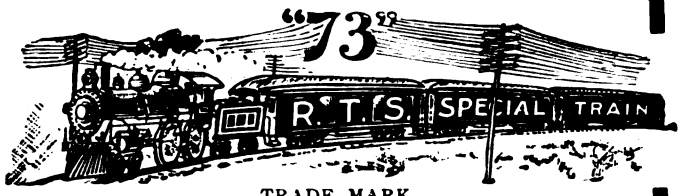
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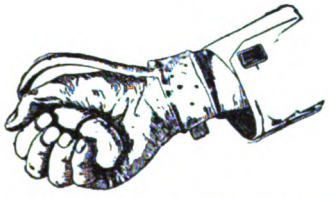
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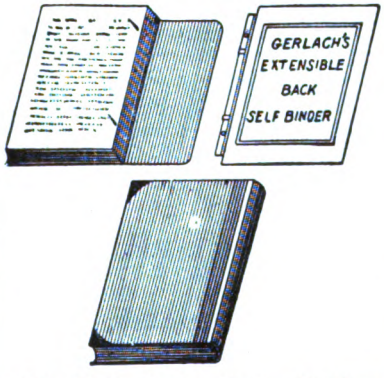
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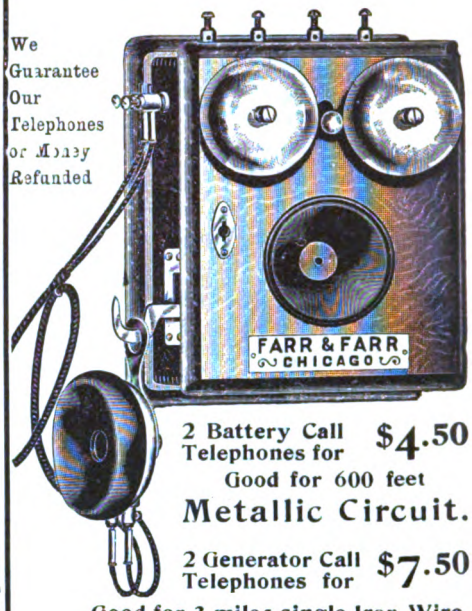
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THE TELEGRAPH AGE.

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SOME POINTS ON ELECTRICITY.

The Equipment of a Modern Telegraph Office, Continued.

BY WILLIS H. JONES.

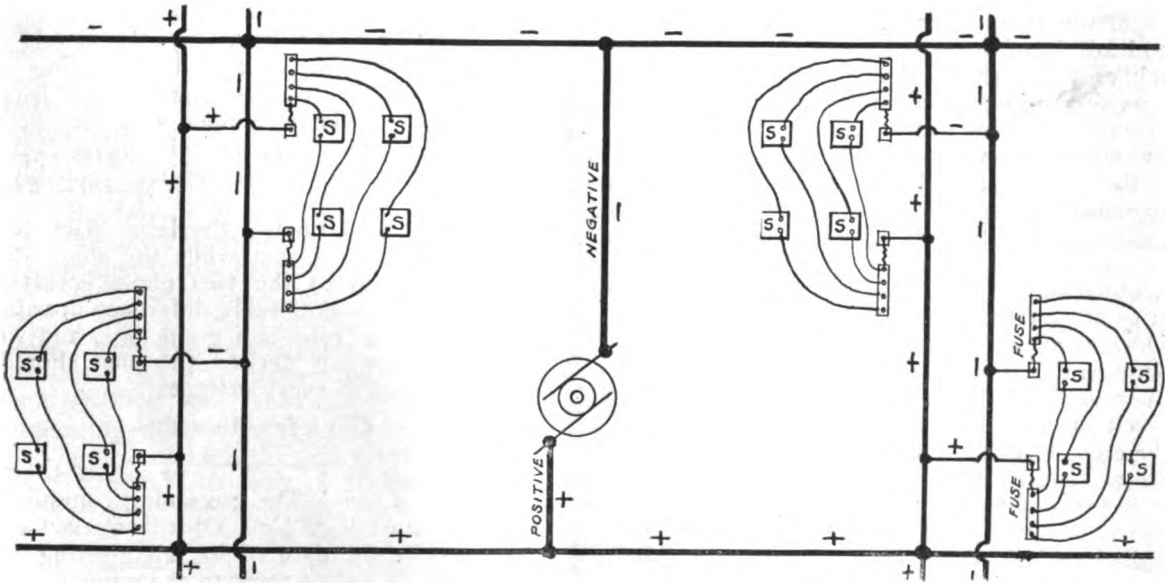
[In the September 1st issue of this journal Mr. Willis H. Jones began a series of articles showing the complete details of equipping a modern telegraph office. Beginning with the proper selection of the dynamos, his aim will be to carry the reader step by step from the cellar to the operating department; thence through the labyrinth of house wires underneath the floor to the various apparatus, stating the size of wires to be used for the main and sub-leads, and last but not least, to give a full and accurate reason for each move.

The series will be a complete handbook for any one contemplating the instalment of a new office or making alterations in an old one. The value of these important articles will be such as to interest a wide circle of readers, and those who desire to follow them in their consecutive order should send in their subscriptions at once.—Editor.]

Having settled the question of electromotive force, noninductive artificial resistance, pattern of sounders to be installed, and other preliminary matters, after the manner suggested in the preceding instalments of this series, let us descend to the cellar, where the dynamotors, for the purpose of illustrating this article, are supposed to be located. Now trace the wires and connections for a multiple arranged local sounder system from the cellar through their various routes to the instruments around the room up stairs. It may be remarked, however, that many modern plants of this character are now found occupying convenient floor space in the operating room.

The accompanying diagram shows a plan of house-wiring quite closely followed by our best electrical engineers of to-day.

In order to cover nearly every problem which may come up and show the principal features of house-wiring, let us assume that the operating



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room is a very large one, say 100 x 50 feet, and situated on the top floor of a very high building, a hundred or more feet from the dynamos in the cellar.

For so great a distance you should attach to each brush of the dynamo, or rather to each "bus" bar, a conductor consisting of a dozen or more strands of No. 18 gage bare copper wire twisted or braided together and well protected by tape or other insulating material. These wires stream from the dynamo to the operating room as the reins of a horse's bridle do from the bit to the hands of the driver. In the operating department these main leads are connected to two separate systems of wire net work laid in trenches in the floor, each set of which represents sub-feeders for opposite polarities of current. In reality they are merely extensions of the two conductors from the dynamo spread out in grid fashion all over the room, in order to be easily accessible for retapping to the desk apparatus.

This network should also be composed of the same gage and number of strands of copper wire as the leads from below; in fact they would serve better if the number of strands was increased, owing to their greater distance from the brushes of the machine. While the latter suggestion is not absolutely necessary, the point is stated in order to constantly remind the reader that the farther we recede from the brushes of a dynamo the more imperative it is that the current shall have as little work to do as possible before reaching its useful sphere of operation within the coils of the instruments. This precaution can only be attained by enlarging the conductors.

The manner in which the said network is constructed is as follows: Run two parallel feeders in separate trenches in the floor the full length of the room. They should each be situated at a distance from the side wall equal to about one-quarter the width of the room. Now connect one of the dynamo leads from the cellar to the conductor in one trench, and the other to its side partner across the way, as shown in the accompanying diagram. This will carry a positive current along one side of the room and a negative on the other.

As the trenches are obviously too far apart to be conveniently retapped for connection with the various sounders, additional trenches should be laid under each row of desks at right angles to the first pair, which should carry in parallel a tap from each. polarity of current. The manner in which this convenience is arranged may be seen by a glance at the cut, which, by the way, shows but two such cross trenches in order to simplify the illustration as much as possible.

The cross trenches should contain a small round opening directly underneath the center of each quartet table, through which the desk wires lead down to the two feeders and are connected thereto. (See diagram.) After the connections have all been made the desk wires should be encased in an iron tube or other suitable casing for protection against the feet of the operators, as well as for the sake of appearance.

In addition to the openings mentioned for desk tapping, trap lids or other removable coverings should be inserted in the trenches, at a distance apart of about eight or ten feet, in order to provide facilities for drawing new conductors from one point of the room to another.

As the local connections of every duplex and quadruplex apparatus in the room are extended to the loop switch, usually centrally located, it will be seen that the process of getting the conductors through the trenches is not an easy one; but the work may be greatly lessened by running a cable between any given set and the loop switch, which former should contain as many strands, or single conductors, as may be required to make all connections. While we are on the subject we will say that one of the best ways to draw the cables through the trenches is to procure a number of extension rods about four or five feet in length provided with what are called male and female screw fittings at opposite extremities, and after inserting the first rod in the opening keep adding others to it until the first can be reached by hand at the next removable cover in the trench. Then add one more rod to the chain at the first opening, which latter should be equipped with a hook or ring to which the cable may then be attached and drawn forward from the next opening. By the time the cable has been drawn to the second opening the rods will have reached the third lid, where the process may be repeated. By this means the cable may be drawn to any part of the room desired.

To avoid confusion in locating the various conductors which lie side by side in the trenches, it would be well, when possible, to use different colors of braiding or insulation for each class of conductors. In a large office where alterations are continually being made—frequently by strange linemen—such an arrangement would not only be a great help to them, but should reduce the chances of making a serious mistake to a minimum.

The desk wires, that is to say, the simple conductors in cables just described as having been drawn through the trenches should be at least of No. 14 gage insulated copper wire for medium lengths, and where the distance is considerable, an 11- or 12-gage conductor would probably be better.

Again, we must qualify the latter part of this statement by stating that while the slight difference in the sizes of the two gages mentioned might not make a noticeable difference in value of the current, the rule is a good one, and where greatest efficiency is desired the plan should be strictly followed in every instance.

(To be continued.)

MAGNETIC CLUB.—The governing committee of the Magnetic Club, of New York, has selected November 20 as the date of its fall meeting. The delegates from out of town to the annual meeting of the Telegraphers' Mutual Benefit Association, which meets on the same day, will be guests of the club.

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Business Notices.

TO THE TELEGRAPH FRATERNITY:—Having resigned my position with The Associated Press, I have connected myself with L. E. Niles & Co., who are financing the stock of the Cherry Hill Gold Mining Company. This company is a working proposition, taking gold out of their mine every day, and is paying 12 per cent. per annum dividends on the amount invested. The dividends are positively not paid from stock sales, but they, as well as the running expenses of the mine, are paid from the gold taken therefrom in its development, and there is enough ore now blocked out to not only continue the present rate of dividends for years to come, but to increase the rate of dividends in the near future. The amount realized from sales of stock is used solely for the running of the tunnel and increasing the stamp capacity of the mill and, under our contract, cannot be used for any other purpose.

The property of the Cherry Hill Gold Mining Company consists of 280 acres of land in Siskiyou county, California, on which there are fourteen mining claims. They are working one claim only, in which they have developed four veins of gold bearing quartz, averaging $10.00 per ton in value. They are now running a tunnel 1,500 feet to intersect these four veins, and, although in only 100 feet, they have already uncovered indications of rich ore and expect to find, before they get much farther in, the mother lode supplying these four veins, as well as others which will be uncovered. The following is an extract from a letter, received on October 5, from Mr. E. D. Baker, president of the Mining Company, who is at the mine personally superintending the work on the tunnel:

"The work at the mine is in fine shape, and is looking better every day, and I shall be very much surprised if we don't find a ledge sooner than I anticipated in the tunnel, for, although we are now in only a little over 100 feet many stringers of good quartz have commenced to show, which is indicative of an ore body. The more I see of the developments in this mine as they progress, the more sanguine I am of the great possibilities that will ensue, and I know that everybody interested will have the biggest kind of returns for their investments. Everybody in this country predicts great results, and as soon as we strike the mother lode or source of that hill, look out for startling news. I have mined for 30 years, and owned many properties, but this one gives promise of the best and greatest I have known for years."

The names of the gentlemen financing this stock as well as the North American Trust Company, are sufficient guarantee of the stability of the company. They include L. E. Niles, president of the Magneto Electric Company; J. M. Bromley and C. W. Dickerson, of the American Bicycle Company; F. L. Brown, of the Shelby Steel Tube Company, and Wm. Van Brocklin, of the Amsterdam (N.Y.) Knitting Mills. The North American Trust Company of New York is the registrar of this stock, and countersigns every certificate of stock issued.

Being connected myself with the Company financing this proposition, I expect to reap large benefits therefrom, and nothing would please me better than to benefit my old friends in the telegraph selvice. I certainly can't afford to associate myself with anything that is not legitimate and honest, and I would not ask any of you to invest your money where I felt you would not get a substantial return. Candidly, we expect this stock to be listed in the near future at par value, and if our expectations are realized, the price of the stock will be not par, but should advance to from $3.00 to $5.00 per share in less than one year. I would be pleased to have your orders for stock in amounts not less than 100 shares, the price of stock at present being 50 cents per share. Can you not take at least 100 shares yourself, or get up a little syndicate in your town to take from 1,000 to 5,000 shares? Should you be able to do so, I will pay you 5 per cent. commission on all cash that you turn in to me or L. E. Niles & Co. Remember, boys, you are not only working for yourself, but for one of the fraternity, who has been pleasantly associated with you for many years. Let me hear from you soon, and I hope in a substantial way.

Yours truly and fraternally,

E. W. H. COGLEY,

Room 607, Park Row Building, New York.

New York, Oct. 10, 1901.

Our readers will notice the advertisement appearing elsewhere in this issue, among the "Letters from Our Agents," and under the Chicago head, announcing that typewriters are bought, sold, rented and repaired by the Telegraphers' Typewriter Company, of that city. Operators and others in the western metropolis should make a memorandum of the fact to guide future action.

A Twentieth Century Story: Lost grip; lost job. Twentieth Century Telegraph Key: New grip; new job. You can't send light signals on a Twentieth Century Telegraph Key.

Send for circulars, addressing Foote, Pierson & Co., 82-84 Fulton street, New York.

Right to Land Cables.

Attorney-General Knox made an oral report to the President and Cabinet on October 11 regarding the result of his investigations into the Pacific cable question. His conclusion was that under the law of 1866 any domestic company could land a cable on the shores of the United States or of its possessions. President Roosevelt and his Cabinet were convinced that no executive action is called for at this time. The President will go over the subject more in detail with the Attorney-General and will review the whole question in his message to Congress.

Wireless telegraphy seems to have a great future in the Sahara Desert, as communication can be readily set up between the oases—and there are no wires to steal.

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George H. Corse.

George Henry Corse, who was elected president of the Old Time Telegraphers' and Historical Association, at the September meeting held at Montreal, Que., is a telegrapher well known throughout the West. He was born in Berlin, Germany, and came to this country at an early age. His inclinations led him into the field of telegraphy, and his first entry therein was on April 14, 1865, at Fort Madison, Iowa. He served successively as operator, occasionally both as operator and agent, at Summit, Eddyville, Woodville, Danville, Melrose and Burlington, in Iowa; at Earl, Naperville and Carthage, Ill.; at Farmington and Hector, Minn., and at Davis Junction, Ill., going from the latter place to accept the position, now held since October 13, 1900, of freight and passenger agent of the Union Pacific and Oregon Short Line railroads, at Ogden, Utah. Mr. Corse is a man of



GEORGE H. CORSE, OF OGDEN, UTAH.
President elect of the Old Time Telegraphers' and Historical Association.

sterling character, an excellent executive officer, and because of his wide acquaintance and genial temperament, is likely to prove a popular head of the organization which has honored him with the presidency. Under such leadership the interests of the Old Timers' Association should be materially advanced in the great central West.

Belvidere Brooks.

Belvidere Brooks, the vice-president-elect of the Old Time Telegraphers' and Historical Association, is assistant superintendent of the Western Union Telegraph Company, at Denver, Col. He is a native of Texas, having been born at Wheelock, that State, July 6, 1859. He entered the telegraph service as messenger at Navasota, Tex., in July, 1871. During the years 1877 and 1878 he was employed as an operator and in other positions of trust at various places on the Houston and Texas Central Railroad. In 1879 he first became identified with the Western Union Telegraph Company, and in the following year was advanced to the managership of the office at Navasota. After a few months' service at this point he became a clerk in the superintendent's office at Dallas, subsequently serving successfully as manager of the Waco, El Paso and Galveston offices. At the latter place he remained until November 1, 1890,



BELVIDERE BROOKS, OF DENVER, COL.
Vice-President elect of the Old Time Telegraphers' and Historical Association.

when he was appointed manager at Denver, Col. On January 1, 1893, he received his promotion to his present position of assistant superintendent of the third district.

Mr. Brooks is a capable official, is popular with his men, and enjoys the entire confidence of his company.

Telegraph Company Elects Officers.

The annual election of the Philadelphia, Reading and Pottsville Telegraph Company was held in the office of Superintendent C. M. Lewis, Reading, Pa., October 6. These officers were chosen: President, George F. Baer; treasurer, W. A. Church; secretary, W. R. Taylor; directors, Joseph S. Haris, John Lowber Welsh, Theodore Voorhees, C. E. Henderson. The judges were C. M. Lewis and L. D. Shearer.

British Pacific Cable.

James Wilson, superintendent of the Canadian Pacific, states that Mr. Lockwood, who has charge of the work of preparing the landing of the British Pacific cable, and two engineers, have gone to Banfield Creek, on the west coast of Vancouver Island, 104 miles from Victoria, to make arrangements for the site for the landing place. Wharves will be built and houses to accommodate the staff, which will consist of about forty men.

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The Telephone in Railroad Service.*

BY F. P. VALENTINE.

The growth of railroad telephony in the last few years shows a gradual evolution from a public telephone on a party line with old-fashioned equipment, located in the general office or freight office of a railroad, to complete exchange systems with long distance lines, handling a business that compares favorably in volume with that of many corporations furnishing public telephone service.

It is estimated that to-day in the United States there are some 200 private branch exchanges operated by the various railroad companies, connecting over 5,000 stations, a large proportion of these having been installed within the last three or four years.

That this development has been so long delayed in comparison with the rapid growth of the public telephone service is largely due to the fact that the possibilities of economy and expedition of business have not been appreciated by either the telephone or railroad companies. The development which has taken place in the time named has been such as to arouse an interest that would indicate unlimited possibilities in the way of further development within the next few years.

The conditions surrounding the telephone service some ten or fifteen years ago were such that one telephone in the office brought most in contact with the public served to furnish such information as was desired by the comparatively small number of shippers and patrons who were able to afford, what was then considered, the luxury of a telephone. With the rapid increase in the number of the latter, with the improvement in equipment and service, and the gradual reduction in rates, the demand for communication with railroad and transportation companies increased rapidly. This naturally led to more telephone connections with the public and later to the establishment of private circuits between the various offices in order that detailed information to be given to the calling telephone subscribers might be better handled. This still increasing use led to further additions to these private circuits until the lines were burdened with a large number of instruments, causing vexatious delays in obtaining the use of the line, lack of privacy, and dissatisfaction on the part of the users. This finally resulted in the establishment of private exchanges operated by the railroad companies, with a switchboard at some central point, and having telephones located in the various departments.

These exchanges, in many instances, as first installed, were for purely domestic use and had no connection with the public, but with the rapid increase in the use of the telephone on the part of the public, it was soon found that by connecting these exchanges by trunk lines with the public exchanges and allowing calls from the public to be switched on to the telephones of the particular departments with which it was desired to transact business, a great saving in time was effected and better satisfaction given the public.

At first, only offices having business to do with the public were connected, allowing, perhaps, one telephone in each department. But the results quickly led to a rapid extension of this class of service to freight yards, towers, switch cabins, etc.

The saving in time and messenger service effected by the connecting of the various departments in large railroad offices produced economies so apparent that to-day there are few large railroad companies not equipped with this class of service. The public has grown to expect that information shall be furnished by telephone rather than by letter or telegrams.

It may be interesting to note a few of the many uses to which the telephone is now put. Starting with the ticket offices, it is astonishing how many calls there are for reservations, information as to the time of arrival and departure of trains, and the multitude of questions which may be asked by the public. These are all handled quickly and to the satisfaction of all concerned. In many cases, ticket offices at large terminals need to have special equipment to handle the immense volume of business which pours in from the thousands of telephones connected with the public service. In large cities one telephone in the ticket offices will hardly suffice. Persons anxious to secure reservations will call time after time, only to be given the much detested answer "busy." It is stated that the ticket office of the Fall River Line in New York is one of the busiest in the country from a telephone point of view. As an illustration of what the public has to suffer from insufficient telephone facilities, it is interesting to note that here even with a branch exchange having five trunk lines to the public, with a telephone in the ticket office, with one man giving his entire time to the reservation of staterooms and with the switchboard operators relieving him of many calls by giving general information when reservations were needed, the lines were still reported busy 1,600 times in one day. As may be imagined, such a state of affairs brought serious criticism from the public, and it was necessary in this case, in order to relieve the congestion on the wires, to double the number of trunk lines, holding them exclusively for incoming business while other lines were installed for the outgoing traffic. A small turret switchboard was installed in the ticket office, having several lines to the main branch exchange switchboard. This enabled the clerk in the ticket office to handle several lines at once and in an emergency two clerks could be taking the calls and giving out the reservations. When the number of calls for the ticket office was greater than could be handled on the lines between the switchboards, the operators were instructed to take the numbers of the subscribers and call them up in rotation as they were able to handle them.

The conditions in this case were almost the reverse of the usual use of a branch exchange, for ordinarily calls coming in over the trunk lines are switched to many different points, while here the bulk of the business was for one office.

The utility of the telephone in freight offices is

*Read before the Convention of the Association of Railroad Telegraph Superintendents, at Buffalo, N. Y. June 19, 20, 21.

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also very apparent, as calls for rates and information as to shipment or delivery can be quickly furnished.

At one of the largest freight yards in this country, having a completely equipped branch exchange connecting all points throughout its various houses and yard points, a person expecting incoming freight, upon obtaining connection with the switchboard and stating what is desired, is promptly connected with one of three clerks whose duty it is to furnish such information. These clerks, by the use of various direct lines to the offices concerned, are able, within a minute or two, to give the calling subscriber definite information as to arrival or non-arrival of the desired freight, and, if it has arrived, to inform him at what door of a certain freight house his teamster should go to find it.

Many receivers of freight are notified at once by telephone of the arrival of freight instead of waiting for the usual written notice, thus securing a prompt removal of the goods and relieving congestion in the freight houses.

As telephone users increase in number, it will undoubtedly be found more satisfactory to all concerned to notify by telephone rather than by mail and, with proper precautions, a record and check of the receipt of the notice may be kept. While many question the advisability of giving rates over the telephone the cases of dispute in regard to the rate quoted form a small percentage of the whole, and, in important cases, the rates quoted may easily be confirmed in writing.

Where freight is transferred from one road to another, cars not accompanied by way bills may be saved needless switching by prompt communication by telephone and, in many instances, it will mean a saving of twenty-four hours' delay in forwarding a car to its destination, which, in case of perishable freight, may save heavy claims for damages. Way bill corrections may be made in this manner without delay and with no more liability to error than in the case of telegrams.

The telegraph lines of a railroad company at points but a short distance apart about the yards are often burdened with much business that could be transacted far more quickly by telephone. There are many instances where yard offices within half a mile of the main office, equipped with telegraph, are handling messages on through wires, delaying other business, when a few dollars expended on telephone circuits would relieve the situation and give better satisfaction.

Where there is much competition for business between different roads, it is often necessary for a traveling agent to get into immediate touch with his superior. If he can step to the nearest pay station and call up the local switchboard of his company and through them be connected with headquarters of his company, in two or three minutes the matter may be settled, perhaps resulting in the securing of business that otherwise would go to a competitor.

Insufficient telephone equipment, resulting in the constant inability of prospective shippers to get into communication with railroad offices will often lose a large amount of business when an immediate decision must be made, and it is found that the offices of a competing road are, through adequate telephone facilities, easily reached.

A certain telephone company, noticing such a situation, took pains to have the lines of the two competing railroads monitored, and the result showed that the road whose telephone was constantly reported "busy" lost enough business to its competitor in one day to pay the rental of a complete branch exchange equipment for a year.

In one case at a large terminal, embracing six large freight yards within a distance of nine miles, through all of which runs a double track main line averaging several hundred trains per day, every tower and switch cabin is connected to a switchboard in the passenger station, keeping dispatchers, yardmasters, towermen, and switchmen in close touch with one another. Many switching movements have to be made on and across the main line tracks, it being necessary, of course, to keep the line clear when trains are due. Now that all concerned are kept posted on the situation by telephone it is possible, in case the main line trains are delayed, to continue switching movements to a safe time limit, whereas, before, delays were inevitable. The yardmaster is enabled to follow movements so closely by being kept informed from the various points, that a saving of two switch engines has been effected over the number in use before the telephone service was installed.

One of the largest passenger terminals in the country has a very complete telephone service, the main exchange being located in the office building. Every official has direct connection from his desk to the exchange. The general yardmaster, the trainmasters, towers and cabins are all connected to the switchboard. besides having direct lines to the points with which they have most business. The main interlocking tower, which controls all the yard movements incidental to handling 750 odd trains per day, has a special switchboard, to which are connected the outlying towers, switchcabins, yardmasters, signal bridges, etc., with trunk lines to the main exchange. Incoming trains are reported to the operator by telephone and he is constantly in touch with every movement being made. Not a telegraph instrument is in use at any of the yard points, the telephone being the only means of communication. The yardmaster also has a small switchboard, giving him direct connection with the various points he has to reach. In case of a bad fog, when the signals cannot be readily seen, men are stationed at the signal bridges on which are placed telephones in boxes connecting with the switchboard in the interlocking tower, and the trains are handled without delay and with safety. There is hardly a place in the immense plant where any man is stationed, having special duties, that cannot be reached at once by telephone. All wires are underground—not an overhead wire in the yard—and there has yet to be an instance of any failure in the service night or day.

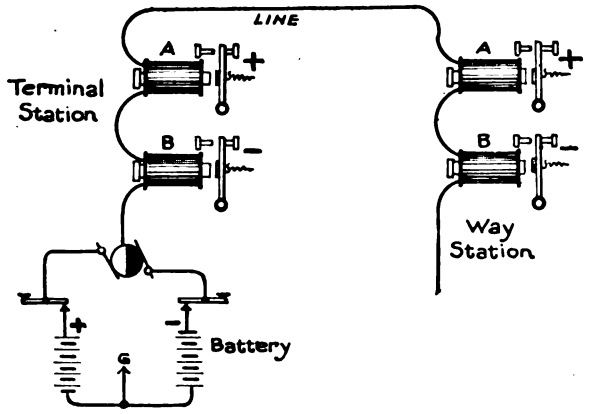
(To be continued.)

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The Roberson Quadruplex.

BY D. B. GRANDY.

As an illustration showing how near one may be to a good thing, and yet fail to grasp the possibilities lying in it, I enclose herewith a sketch of a device on lines since successfully worked out in the Roberson quadruplex. The device shown is for a way duplex, and was filed by me in the Patent Office in 1880. The idea was suggested by Gray's Harmonic System, which was then being experimented with between New York and Boston. The working parts were, at the terminal station, two batteries of equal voltage, an alternating device by which impulses of alternate polarity were sent to line; keys in each battery circuit, having rear contact points, by the closing of which the current from their respective batteries was interrupted; two relays having polarized armatures, arranged to vibrate, one on + and the other on — impulses. While so vibrating, their local circuits remained open, but on the current of either polarity being cut off at the terminal station, all relays affected



DEVICE FOR A WAY DUPLEX.

by that polarity ceased vibrating, and their local circuits closed.

The signaling from way stations was done by an intermediate battery of the same strength as the terminal batteries, so connected to two transmitters, that the closing of one inserted the battery with its + pole toward the terminal battery, thereby neutralizing the + impulses from that battery; the closing of the second transmitter inserted the way battery with its — pole toward the terminal, neutralizing the — impulses, and when both way transmitters closed simultaneously, the main line circuit was opened, thereby stopping both sets of impulses. There were other devices for equalizing the current strength, steadying the relays, etc. I first used the vibrating tuning fork of Gray as an alternator, but afterward substituted a commutator driven by a small battery motor.

This system worked well on an artificial line, and when shown to F. L. Pope, then assistant electrician of the Western Union Telegraph Company, he gave it unqualified approval, and permission was granted for experiments on the lines of that company. But the very first experiment on a real telegraph wire developed an unforeseen "bug" of the largest and most venomous species. I found that when the way station closed both transmitters and thereby opened the main line, the static capacity of the line was sufficient to keep both the home relays vibrating. And this effect was produced, even when the way station was but twenty miles distant!

This discovery put a damper on further experiments in that direction. The possibilities which lay in the device if applied to a quadruplex did not occur to me, and the application for a patent was abandoned.

The experiments above referred to were made by permission of General Eckert on the lines of the American Union Company, with the assistance of Mr. J. W. Wilson, then chief operator for that company at Boston.

Automatic Train Signaling.

It is reported that the Pennsylvania Railroad Company is considering the adoption of an automatic electric-signal system on its locomotives, says the Western Electrician. The system was recently tested by the Chicago and Eastern Illinois Railroad, between Dolton and Momence, Ill., a distance of sixty-three miles. The result of the experiment was very satisfactory and seemed to show that the electric signals were far better than the ordinary block system.

In the experiments conducted by the Chicago and Eastern Illinois, the line was divided into block sections of suitable length, and adjacent block sections were separated by an insulated track section one rail in length. The track batteries were placed at these points, the positive wire leading to the insulated rail and the negative wire to the block section in the rear. The rails in each block were bonded in the usual way. In the engine cab were located two incandescent signal lamps, one white and the other red. One or the other of these is always burning. Current was supplied by battery on the engine or tender, and was switched from one lamp to the other by an instrument operated by the track circuit. Each locomotive axle had electrical connection with a conductor leading to the instrument on the engine. When the wheels entered the insulated section (if the stop signal was to be given) the current passed from the rail through the wheel conductor and cab instrument, switching the lighting circuit to the red lamp.

In this system the signal is always given two blocks back from the obstructed block, or the train-order signal, so that when the red lamp burns the engineer knows that he has one clear block in which to stop his train. The red lamp burns when a switch is open, a block section occupied or a train-order signal displayed.

Electrical appliances in use in the United States to-day are estimated to be worth $3,975,000,000. The capital of the Magnetic Telegraph Company, the first to introduce the use of electricity for industrial purposes (in 1846), was $15,000.

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Crude Attempts at Telegraphy.

About seventy years ago, perhaps before the present mode of telegraphy had been thought of, an attempt in that direction was made by a Mr. Porter, a man of inventive faculties, who afterward became originator, proprietor and conductor of The American Mechanic, the pioneer publication in that direction, and the predecessor of the present Scientific American.

The southern and ocean terminus was on Rhode Island, on Rocky Farm, and the place of its location has since been known as Telegraph Hill. It was constructed wholly of wood, was in part a species of wireless telegraphy. It consisted of a series of upright posts, with a number of arms secured to the post at one end by pivots, permitting the arm to be moved in any direction desired, at the liberated part, or up and down, and the information was derived from the relative position of these arms. The signals were placed on the summits of the highest hills, at desired intervals, an operator being required at each signal post to convey the signals to the next station.

To reach Boston, as was intended, would require a large number of signal stations and operators, and the execution would have been necessarily slow and expensive. Of course, no approach could have been made toward the present manner and matter of telegraphy, at best being confined to the briefest expression of important information, to carry which to Boston, for instance, would have required a comparatively long time. It was put in operation, if the writer mistakes not, and for a sufficient length of time to test its availability, but not its practical value, and it was early abandoned. It is only within a few years that the southernmost signal post disappeared from Telegraph Hill.—Newport (R. I.) News.

Philippine Archipelago Cables Complete.

Gen. Chaffee has cabled to the War Department from Manila, reporting that cable communication has been established between Palanog and Legaspi in the Philippine Islands. This completes the last link of cable and land line communication in the Philippines and gives an uninterrupted service from Bongao in the Tawi-Tawi group, in the extreme southern part of the archipelago, to Apara, in Luzon, the extreme northern point. The last cable to complete this communication has just been laid from Legaspi to Bacon, north of Sorsogon, making connection with Palanog on Masbate Island.

One feature of importance in the completion of this work is that the Government will now be able to control its own lines and will not be compelled to use the English cable line for any inter-island or land communications, as connection is now established with all the islands of the archipelago.

It has been found that the life of a telegraph pole in the Philippines is very short, being little more than a year, it is said. The white ants, which are to be found on the islands, aid the climate very materially in the work of destruction.

The Action of Zinc in Sal Ammoniac Cells.

The American Electrician, in answer to the question, Why do the zincs in sal ammoniac cells usually eat through at the top faster than at the bottom? prints the following:

"There is generally more or less of the double chloride of zinc and ammonium present in every sal ammoniac cell. As this is heavier than the mixed solution of zinc chloride and of ammonium chloride, it settles toward the bottom of the cell. There is then a local action which tends to dissolve the zinc at the top and to deposit it at the bottom, for zinc in a solution of zinc chloride is positive to zinc in a solution of the double salt; the zinc and the liquid thus become a short-circuited cell."

Gold and Stock Life Insurance Association.

The report of the auditing committee of the Gold and Stock Life Insurance Association for the quarter ended September 30 shows the condition of this company to be as follows:

Balance on hand, last report	$16,197.69
Receipts	1,890.01
Total,	$18,087.70
Disbursements	$1,409.75
Balance on hand	$16,677.95

F. H. Nicholls, Wm. Shone, M. J. O'Leary, auditing committee.

Telegraphers'. Mutual Benefit Association.

The annual meeting of the Telegraphers' Mutual Benefit Association will be held in the Western Union Building, 195 Broadway, New York, at 4 o'clock, on Wednesday, November 20.

As the by-laws require that at all meetings of the association thirty members present in person, representing one-third of the entire membership, shall constitute a quorum, members who cannot attend are requested to sign proxies and return to the agent or forward to the secretary's office, New York, at the earliest date convenient, in order that there may be time for checking and listing the same.

Wireless Telegraphy in Mid-Ocean.

When the steamers Campania and Lucania, both of which are equipped with the Marconi wireless telegraph system, passed each other in mid-ocean recently, although 65 miles apart, messages were successfully exchanged with one another. This is no doubt the first time telegraphic communication has been maintained between steamers in mid-ocean. At no time were the vessels within sight of each other. Communication was maintained for a period of two hours.

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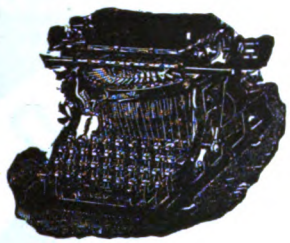
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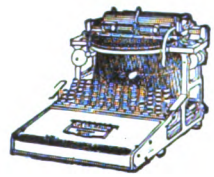


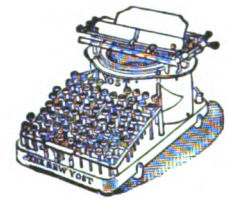
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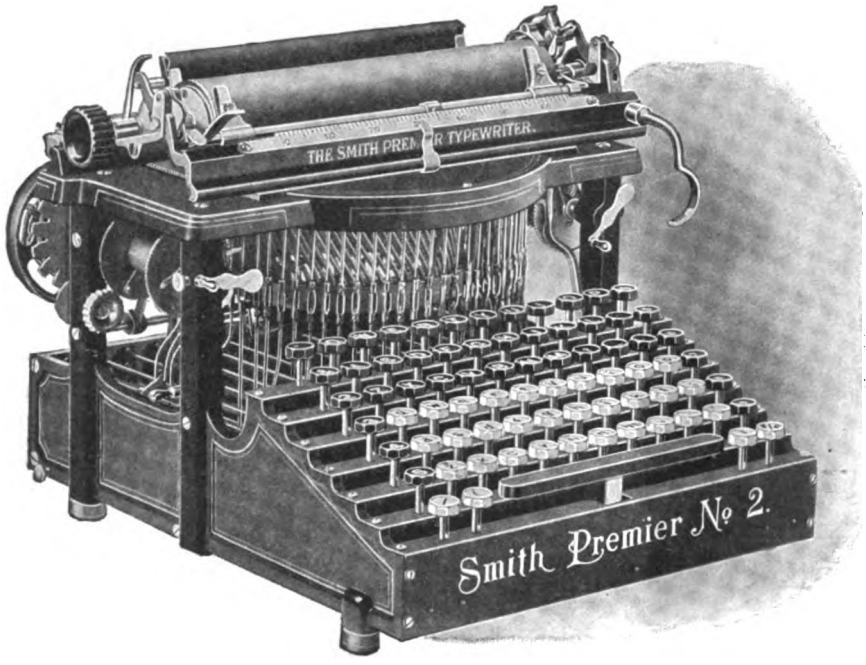
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NEW YORK, October 16, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

The Value of Telegraph Age's Technical Articles.

No stronger proof of the great value to students of the technical articles contained in TELEGRAPH AGE can be found anywhere than may be inferred from the fact that the International Correspondence Schools of Scranton, Pa., which claims to have enrolled over 300,000 members since its incorporation, have, by permission of this journal, embodied in their newly revised and handsomely bound text books, nearly twenty-five pages made up of the articles contributed by Willis H. Jones, under the caption of "Some Points on Electricity," appertaining to the care and handling of multiplex apparatus.

The popularity of Mr. Jones' writings is due, not not only to the accuracy of his statements, but to his aim to cover the small side features of each subject, a matter too frequently overlooked by authors, but one which, if belittled, leaves a perplexing remnant to the student's education.

It will thus be seen that the marked appreciation evinced for this journal by a great institution of learning should justly find its counterpart among the numerous body of telegraphers themselves, the best interests of whom TELEGRAPH AGE has ever sought to promote. For no telegrapher, official or operator, who places a proper value upon his opportunities, and who accordingly would keep himself thoroughly informed regarding all that is passing in the telegraphic world, and who would take advantage of important technical knowledge constantly presented for his instruction in these columns, obviously cannot do so without recourse to this paper. TELEGRAPH AGE, then, should be indispensable to every telegrapher.

The Government and the Telegraphs.

It has recently been reported, we do not know on how good authority, says the New York Times, that the United States Industrial Commission is likely to recommend legislation looking to the operation of the telegraph lines in this country under Government ownership. The commission went pretty fully into the question last spring, and from the facts that were then brought out we should say that it would approach any suggestion of government control and management with the utmost caution. That there are defects in the present system will hardly be denied by its own advocates, but that they are of such a nature that they can be remedied by government operation, without incurring difficulties of much more serious kind, is a proposition which, to say the least, remains to be proved.

The natural analogy of government telegraph ownership is with the Postal Service. In this country that service is carried on at a considerable loss, and though it has been shown plainly that the loss could be avoided by the introduction of the simplest business principles and the abolition of special favors to particular classes, it has so far been found entirely impracticable to secure Congressional action in that direction. The difficulty in telegraph management would certainly be as great. Again, the management of the Postal Service is seriously handicapped by the political changes in the postmasters at every change of party, and even a change of Administration without a change of party. Such instability in the employees of the telegraph service would be much more injurious than in the Postal Service.

On the other hand, it has been demonstrated

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that the operation and maintenance of the telegraph system is radically a different problem from that presented by the Postal Service. The latter is practically a hired service. It requires no plant, no construction, no extension, no important introduction of new appliances or inventions. The plant and property employed are those of the transportation companies, and any increase in the volume of business can be met by an added expense less in proportion than the added income. The reduction of postage, therefore, naturally and easily involves an increase of business that may bring no decrease in the net revenue. That clearly would not be the case if the Government, in order to meet added business, had to build new lines and add to the terminal and other appliances for handling it. Not that a progressive reduction of telegraph tolls is not practicable with the increase of business. It is, and it has taken place. But it is limited by conditions that do not exist in the case of the Postal Service. It can be secured only by large expenditure, which should be and must be made with more care and skill and accountability than are ordinarily to be had in Government operations.

The usual example that is held out as sustaining the plea for Government telegraph ownership is that of Great Britain. But the telegraph department of the Post Office of the United Kingdom, with important conditions far more favorable than they can be in this country, is carried on at a considerable and progressive loss. In that country the distances over which lines have to be maintained and operated are very much less than in this, the amount of business per mile of line is greater, the necessary expense is proportionately smaller, and the civil service, from which the employees are taken, is far more stable and conducted more on business principles and with business methods. Yet with all these advantages the total loss of the Government on its telegraph business since its assumption in 1870 has been $40,000,000. Even with this large contribution to the expenses by the taxpayers, the rates are not materially lower than those charged in this country for short distances, and are decidedly higher for the longer distances. How far the telegraph under Government management in England fails to supply as complete service as is afforded in the United States is shown by the fact that in that country there are only one-fourth as many telegraph offices as post offices, and in this there are more than half as many. Despite the short distances and the density of the population, only one-half as much accommodation is given in England as in the United States.

If the same scale of accommodation were supplied in England the loss on the business would be larger. If the Government in the United States undertook to keep up the large measure of accommodation now given, the loss would necessarily be larger here than it is in England. We have already 927,071 miles of wire in use. England has but 308,436 miles. In Great Britain the population is about 333 to the square mile. In the United States it is only 24. But in the United Kingdom there is only a mile of wire to every 130 people. In the United States there is a mile of wire to every 76 people. We have 70 per cent. of accommodation more than they. If we paid for it at the rate that they pay for theirs the tolls would be much higher and there would still remain a heavier tax to be levied on the people. In the light of these facts it is not easy to see what advantage the United States could gain from the assumption of the telegraph business by the Government. If, however, any such extreme and hazardous experiment is to be tried, there is one condition precedent that must absolutely be insisted on—the complete banishment of all politics from it. As that, at present, would be simply a miracle, the proposition ought not seriously to be considered.

"Up to" The Telegraph Company.

"It puzzled me for some time," said the portly party in the Detroit Free Press, "but the explanation was simple enough from the standpoint of my wife. During the trying hot spell that we had in July she visited a sister who lives in the central part of the State. When she left I told her to wire me when she got to her destination so that I would know that she had arrived safely. I said that the word "arrived" would be all that was necessary, and I would know from that that all was well. In due time I received a telegram from her which read: 'Arrived, the big black bug and the big black bear.'

"I sat and looked at the telegram in blank amazement, trying to figure out what she meant. I concluded at last that the message had been mixed up in sending, so I went to the telegraph office and had it repeated. The answer came back that it was correct and according to the copy that had been filed. Fearing the heat had affected my wife's head I boarded the first train and imagined all sorts of dire things that might have happened to her.

"'Goodness,' she gasped when I appeared on the scene, 'What has brought you here?'

"'This telegram,' said I, breathing a sigh of relief. 'Perhaps you will be kind enough to explain what you meant by such a fool jumble of words.'

"'Why,' said she, 'the clerk said it would cost no more to send ten words than it would to send one, so I decided to have my money's worth.'

"'Well,' said I, 'It seems to me that you might have picked out a less idiotic combination.'

"'Why, you see,' she answered, 'that was what the car wheels said all the way out here, so I just put it in to fill out!'"

Abandoning Copper Wires.

It is stated on good authority that the work of thieves is compelling the telegraph companies to take down their copper wires between Philadelphia and Chester, Pa., and substituting iron wires therefor. Many thousand dollars' worth of copper wire has been stolen at various times during the past three years, and the police authorities have been baffled in their attempts to arrest the thieves. The annoyance has become so great that the companies have decided on the change for their own preservation.

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Women as Telegraphers.

(Concluded from page 402.)

Passing from the subject of efficiency the question of economy is discussed, and the statement that in England female telegraphists are 25 per cent. cheaper than the males is grappled with. Mr. Havelock Ellis is quoted as having stated that "when women are substituted for men, an office worked by three or four men will require four or five women," and the French administration admitted that in place of 262 male appointments 325 females were required in one place, and in another for 61 males 128 females were introduced into the service. If the experience of the French Government is of universal application it will be evident that the less pay received by the individual woman is compared with the male, is equalized by the increase of staff. But the subject of sick leave must also be considered, and here the figures are very striking.

"Every State which has expressed an opinion on the point complains that the women's sick-absence is greatly in excess of the men's. The English experience is typical of the whole. In the Central Telegraph Office of London the average sick-absence for the men during 1895 was eight days, that for the women being 14.3 days. To take a wider field, the annual report of the Postmaster-General for 1900 shows the averages for the whole postal staff in London as follows:

Average per sick officer.		Average per officer employed.	
Men.	Women.	Men.	Women.
12.9	14.2	8.1	11.4

"It is noteworthy that some 80 per cent. of the women share in this sick-absence, as against 62 per cent. of men, and it is made up largely of short periods."*

Then came the consideration of the relative power of endurance as between male and female. The Dutch Government, speaking of women, says: "They tire sooner than men." Denmark, Roumania, Sweden, and France support this view, and England works upon a recognition of this principle in relegating the press work, etc., to a male staff. The result of the reports from all the countries enables Mr. Garland to sum up as follows:

"Steady work at low pressure, and more or less mechanical in character, necessitating little or no judgment, seems to be admirably performed by women, but where those conditions are lacking they are generally found inferior to men. The lack of judgment may be due, as I have hinted, in part at least, to educational disability, but there seems to be something more fundamental in the inability to work at high pressure."

Reading the reports of the hours of duty of female telegraphists, it is apparent that the practice varies greatly in the different countries. In England 6 A. M. and 10 P. M. mark the limits of the hours of the women. In Paris the times are 7 A. M. and 9 P. M. In Berlin the ordinary duties of women extend to 10 P. M. In Holland the female operators perform night duty; and while the Swiss Government considers "good morals forbid" female telegraphists from performing night duty, it makes its female telephonists take charge of switch-rooms during these hours. But hours of duty are simply the result of convention, and as women journalists have overcome the difficulty, so women telegraphists will doubtless do the same if the present restrictions be found to hinder their opportunities for work.

Marriage is also a great factor in determining the value of women's work. Year after year large numbers of the better skilled of the women leave the service for this purpose, 196 resigned in England during 1899, with an average age of 27 years, under this heading, and even where married women are retained, as in France, it is reported that "marriage detracts from the value and trustworthiness of the women."

The result of the author's survey of the evidence which he has accumulated leads him to the following conclusions:

"To sum up: We have seen that women possess the ability to perform the routine duties of telegraphy, when carried on at low even pressure, as efficiently as men. We have seen that a broader worldly education gives them the judgment and ability necessary to perform duties of a higher character. In addition, they are attractive to employers because they can be obtained considerably cheaper than men. They possess, too, the sovereign advantage of docility. There are not lacking signs, however, that this docility will decrease as women become more conscious of their economic value and responsibilities.

"As a set-off to their attractive qualities, they suffer from certain disabilities and disadvantages which detract from their value and tend to neutralize the economy in money wages. They would appear to have a lower individual output than men, and as a consequence it is necessary to employ a larger staff of women than of men for the same work. They suffer much more from sickness than men, which reduces their trustworthiness and value. The sickness is largely due to causes that are natural and inherent, and therefore ineradicable. Their average service is considerably shorter than men's and they are thus lost at the period of their higher efficiency. They possess less powers of endurance, and are, therefore, of much less value in sudden emergencies, such as frequently arise in telegraph work. A social prejudice prevents the performance of night duty by women, although there seems reason to believe this can, and will be, overcome."

Adding one more excerpt, we may say, in Mr.

*The Dutch figures are sufficiently striking to merit quotation. During the year 1897, for sick-absences of from 1 to 30 days' duration, the ratio between the male and female staffs was as 1 to 2; for sick absences of from 1 to 3 days' duration the ratio was 1 to 3.

Sir H. C. Fischer, examined by the Tweedmouth Committee, said: "The women come to us young; their mothers have charge of them, and ask them to stay at home if they have any little ailment—and they do." It is necessary to add that the regulation age of entry is the same for men and women, viz., 14 years, and the average age of entry is also the same, viz., about 16 years.

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Garland's words: "There is undoubtedly an excellent field for observation in the English post office, and many good results could be looked for if information were carefully collected, intelligently classified, and frankly published. In view of the importance of the subject it is due to the public that some such work should be entered upon. Meanwhile, our investigation of the material at hand, while bringing out many important facts, still leaves the main question of the relative value of male and female labor in the present day to a large extent unsettled. But one result seems quite certain: Were it not for the docility of women, there is no sufficient reason apparent to justify the favor with which they are viewed by administrative officers and others responsible for their employment." —London (Eng.) Telegraph Chronicle.

Why Not Ethergraphy?

From the New York Times.

A correspondent of TELEGRAPH AGE, James B. Dillon, of Louisville, Ky., has been moved by our recent adverse comments on all the names yet suggested for what is commonly called, or miscalled, "wireless telegraphy," to build one which he considers an improvement on them all. It is "ethergraphy," and he defends it thus: "If 'ether' is supposed to fill all space, and 'graphy' means to write, why wouldn't 'ethergraphy' be a proper term for Marconi's great discovery, as it is believed by a great many if not all electricians that the ether is the conductor of electrical waves, or that the electrical current follows the etheric waves? If the ether theory be true, and we know of no reason to doubt it, then in using Marconi's system of Morse signals without a main line conductor, certainly the dots and dashes are carried along by the 'etherical' conductor, which constitutes writing with the aid of the ether; hence the deduction, 'ethergraphy.'" There are several serious objections to the same. In the first place, the two parts of the word are clumsily put together, the lack of an intermediate vowel rendering it unpleasant to hear and difficult to speak, and, in the second place, the old theories in regard to "ether" are just now in a rather topply condition, and, however it may be with electricians, scientists are getting discontented with the assumptions that have served them so long and well as a working hypothesis, and would not be either surprised or troubled if the necessity for making a new set of assumptions about atoms and molecules as well as ether should soon be manifest. Then what would become of "ethergraphy"?

Charles W. Morse, of New York, has exercised the option he held on more than two-thirds of the capital stock of the Telephone, Telegraph and Cable Company of America at 50 per cent. of the amount paid in and has thereby obtained control of the company.

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Threepenny Telegrams.

The following article, evidently written by "one who knows," appeared lately in the London Daily Chronicle:

The Postmaster-General's annual report for this year discloses the fact that for the first time in the history of postal telegraph service the number of messages despatched over the wires shows a decrease from the preceding year.

The official optimist may make the best of the figures, but with the increased telephone facilities, it may be predicted with confidence that the telegraph work will still further diminish unless drastic alterations are made in the present service. The post office official has no love of progress, and his chief delight is to point to the telegraph system as a failure from a financial point of view, and publish with unwearied iteration the cost of purchase and the other items of expenditure which have absorbed so much of the taxpayers' money.

The story of the transfer of the telegraphs from company to State control is, in truth, a sad one, and should be a lesson in the art of "How not to do it" when other branches of industry are absorbed for the common good. And yet the post office has made several blunders with reference to its telephone business, and if the nation ever possesses an efficient telephone service, it will be due to pressure from without rather than initiative within the walls of St. Martin's-le-Grand. The telegraph system is burdened with an inflated purchase price, and a number of other matters have conspired to press hardly upon it, and, above all, its income has always been reduced by the fact that all improvements have been paid out of revenue.

The truth, however, is palatable. The number of messages have declined, and all progressives interested in the development of State enterprise should be interested in discovering the reason. It is obvious that the test of the value of the telegraph is the amount of work done, rather than the financial result, as, if the people of England use it freely, the reason of existence is manifested.

The two essentials of an efficient service are:

(*a*) A quick and accurate delivery of messages.

(*b*) A cheap tariff.

With regard to the first requisite, it may be said that the telegraph service shows a distinct falling off from what it was a few years back. Delays, especially upon commercial work, are frequent. It will be remembered by our readers that only last year we called attention to the private instructions issued by the postal officials to telegraph superintendents—in which they were enjoined to delay press messages rather than put the department to expense by increasing the staff. Fortunately, the deputation of newspaper proprietors to Lord Londonderry had a good effect, and the Postmaster-General has made considerable improvements during the past twelve months.

But business men complain bitterly of the length of time taken before the delivery of messages. Especially is this the case in the local London service, and the new telephone service will form a formid-

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able competitor unless the post office can be awakened. The question of errors in telegrams is an old one. Mr. Henniker-Heaton suggests that the post office should compensate for the loss incurred, and this is possibly the best way to compel reform.

Nearly the whole of the mistakes are due to the employment of unskilled operators, chiefly composed of boy and girl labor. It is now usual in all telegraph offices to employ "learners," some paid, others unpaid, upon important circuits, and the stock brokers and business men are the chief sufferers.

These points may be enlarged upon, but accuracy can be obtained only by employing competent telegraphists. Understaffing leads to long hours, and a tired operator becomes negligent. In the Central Office, London, last year nearly 750,000 hours of overtime was performed, and these figures speak eloquently as to the undermanning.

The need for tariff reform is becoming felt. An American writer has called attention recently to the small proportion of social telegrams sent in England as compared with America. Democracy still fights shy of the wire, and the working man, as particularly as his wife, is adverse to spending the "full round orb" of the sixpenny piece. On many occasions a telegram would allay anxiety or give information quickly, but the poorer man hesitates.

No national service can live without the democratic copper. The railways find that the third class passenger provides the dividends, and the London County Council has learned that the cheap tram fares spell financial security.

The post office could well afford to make the experiment of introducing threepenny telegrams. It is idle to argue that because the reduction from one shilling to sixpence has not produced a working balance that the still further reduction would fail. Threepenny messages would appeal to a wider suffrage, and a different class of work would be created. There would be little outlay in the direction of new lines. High speed instruments now in existence are rarely used except for press messages, and many of the circuits are never worked to their fullest capacity. Hitherto the telegraph service has been the monopoly of the business and middle classes. The time is ripe for a widening movement. The postal officials may not be able to comprehend the value of anything beyond the penny post, but the telegraph service belongs to the nation, and should be utilized for the humblest of its citizens. In an age like the present, it is evident that reform is imperative when the telegraphs have a retrograde tendency and we suggest the real remedy lies in extending its usefulness by diminishing the cost of transmission.—London Telegraph Chronicle.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.

New Dawson Telegraph Line Revolutionizes Alaska News Gathering.

From the Seattle (Wash.) Times.

The completion of the through government telegraph line from Vancouver, B. C., to Dawson, Alaska, on September 23, marked the close of an interesting era in the lives of Seattle newspaper men. These newsgatherers, since the first wild rush to the Klondike in 1897, have vied with each other to secure "scoops" from the great new North. In some instances sums of money, out of all proportion to the worth of the purchase, have been paid for a small provincial paper containing an account of some murder, suicide, a story of starvation, siege or sensational happening. The people went wild over the discovery of the Klondike and have ever since had an insatiable appetite for stories of Alaska. Numerous individuals of the great Alaskan expanse, having been introduced to Seattle people through the newspapers, the latter now demand news concerning them. Seattle has not only been a mart for the products of the Seattle water front reporter's pencil; nearly all of the newspapers of San Francisco, St. Louis, Minneapolis, Cincinnati, Chicago and New York have had their correspondents here, besides any number of other large newspapers throughout the land. The "yellow journals" have been especially well represented with Alaskan correspondents, who have plied them with thrilling, adventurous, romantic and tragic stories for the past four years—and the best part of it was that all bore a semblance of the truth.

The method of obtaining the news from the distant land of gold was as interesting as it was uncertain. The reporter lived in his work and was always familiar with the contemporary happenings. He knew the geography, the physical construction of the country, its dangers and its legends.

On the local newspaper the opening of the Klondike was the signal for a radical change in the work of the water front reporter, for naturally the Northland news fell to his lot by reason of its first arrival on his "beat." All Alaskan vessels, steam and sail, were covered with an assiduity that oft kept the ambitious newsgatherer on the docks until the small hours of the morning. The pursers of the steamships were at once pressed into the news service and persuaded, bribed and almost blackmailed into bringing all the late newspapers down. They became so familiar with the points of a good news story that a number of them would have drawn good salaries as newspaper men. Later the water front man's work was considerably lightened by special correspondents who took every precaution to get their "copy" down from the North with celerity and certainty. But Alaska is an immense stretch of country and a complete news service throughout the country would have cost fortunes annually to support. For that reason the local man had plenty of work left.

The special correspondence, however, was looked after carefully by some of the papers. No more striking example of this can be given than the details of the fatal Dyea snowslide in the spring of

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1898. The Hearst papers, the San Francisco Chronicle and numerous others were well represented at Skagway and in that vicinity on account of the great surge of people over Chilkoot for the interior. Where there is a crowd, the newspaper man always calculates there is the best chance of a great accident. The detail of the terrible loss of lives is too well known for recapitulation. The newspaper men were on the spot directly after it happened. After obtaining full accounts with the large list of lives lost, the first thought was to get the news down the hundreds of miles of coast to a telegraph line. By charter of an ocean liner and like methods the trick was done; the news poured into the Hearst telegraph operator for hours after the line had been reached and one of the greatest coups ever accomplished was made for the San Francisco Examiner and New York Journal. And the cost of that story was slightly over $7,000. But Hearst considered that he had made his purchase at a fair price.

News from the interior was one of the greatest problems to the local newspapers. Dawson papers were hard to get. This was true on account of there being so many connecting points to be made before the parcel ever reached its destination. Fourteen days was about the shortest time in which Seattle people could read of Dawson happenings. This time was cut down to three days though by the establishment of the Dawson-Skagway telegraph line. The uncertain schedule on which Alaskan boats have run, however, often extended this time to over a week. An instance of this was the hanging of George O'Brien.

The final success in stringing wires over the Naas Mountains lately opens up wonderful possibilities. The value to commerce is readily seen. The end of provision "corners" at Dawson has come. Both Skagway and Dawson can be communicated with by the wonderful Morse telegraph. The connection of the outer world with Dawson has even a greater significance. It leaves only one gap of 700 miles to string before Nome will be in a position to talk with the outside world. The line from Dawson to Eagle is already in operation and now the wires reach out from Nome as far as Tanana. Work is being pushed rapidly to connect the latter place with Eagle. With that one gap closed, London capitalists will be able to confer with their Nome representatives; moneys due on a certain date to close a contract for some mining property can be sent to Nome in a few hours instead of a few weeks as formerly; transportation companies can explode rumors of lost vessels; in fact, the possibilities are unlimited.

The news service of the far North, for so great a time almost a novelty and surely an uncertainty, will slowly drop into the smooth grooves of newspaper grind. The days of trials, hardships and even privations in the rush for exclusive accounts will last only as fond memories in the minds of old newspaper men and as good material for the "old man of the staff" to beguile the cub at the press-house.

Arthur Hale.

Mr. Arthur Hale, whose portrait appears on this page, recently resigned his position as superintendent of telegraph of the Pennsylvania Railroad Company, held by him since January 1, 1898, to become the assistant general manager of the Baltimore and Ohio Railroad Company, with headquarters at Baltimore, Md. Mr. Hale was born in Boston, Mass., on August 22, 1859, and comes of distinguished ancestry, his father being the Rev. Edward Everett Hale of that city, and his grandfather, Hon. Nathan Hale, a nephew of Captain Nathan Hale, of Revolutionary War fame. His father's uncle was the Hon. Edward Everett, United States Senator from Massachusetts. His mother is the daughter of the Hon. Thomas C. Perkins, of Hartford, Conn., a niece of the late Henry Ward Beecher.

Mr. Hale graduated at Harvard College in 1880, with honors in mathematics. He worked for a



ARTHUR HALE.

short time with the Merrimac Manufacturing Company, of Lowell, Mass., and in the locomotive department of the Mason Machine Works, of Taunton, Mass., and entered the service of the Pennsylvania Railroad, October 16, 1882, as an apprentice in the Altoona shops. After service in the shops, the draughting room, and in the department of tests, he was made chief clerk of the car record office, shortly thereafter succeeding to the position of special agent of the general superintendent of transportation.

On the first of January, 1898, he was appointed on the staff of the general manager as superintendent of telegraph, in which position he had charge of the construction and maintenance of all telegraph lines owned or operated by the company, the distribution and economic use of repair supplies, and in general responsible for the efficiency of the telegraph service.

Mr. Hale has a mind well stored with knowledge

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and adapted to the requirements of his present position, and an invaluable railroad experience, and his telegraph friends extend congratulations on his promotion.

Some "Back Dates."

BY WUNUVUM.

Wire testing is a pretty ragged business, judging from the number of "patches" that are required.

The drought out West this summer must have been just suitable to telegraphers, as so few of them are ever prepared for a "rainy day!"

"If you have any chewing tobacco," said the side-partner on a duplex, "remember that I am here to receive!"

"'No more' here," said the sender.

"Is there a place in Ireland called 'McTavishers Bog'?" asked a customer.

"I don't know," said the counter clerk, "but I think that that policeman out there could tell you!"

If, as per the latest scientific authority, tuberculosis germs cannot be contracted from cows, where does the "official cough" come from that the new appointee catches so readily? Let somebody "hurry answer."

"Do you never read newspapers?" complained a man to a receiver of a special who showed dense ignorance of common events.

"Oh, yes;" answered the receiver, "I always read the 'Help Wanted' column!"

"Will you take code?" queried an up-State man with a hundred word special.

"No," replied the newspaper operator, "I promised my wife never to take anything hot again unless prescribed by a doctor!"

"Have you anything likely to bring about your early demise?" was a question to be answered on a telegraphers' aid society's application for membership blank.

"Nothing," he wrote, "except a tip on the Saratoga races that's said to be a 'killer'!"

"Just make a note for me," said a chief to an operator, referring to some delayed business.

"No, I won't," exclaimed the man, "I made a note for a fellow out in Missouri eleven years ago, and I've been changing my name four times a year ever since! No, sir; I'll make no more notes for anybody!"

"Oh, get the operator!" was the old, frayed sarcasm a city man vented on a Kansas crossroads fellow.

"I am the operator," retorted his indignant vis-a-vis; "also station agent, town marshal, coroner and undertaker. For anything in my line send me your address!" The entente cordiale was not resumed.

"For promoting harmony in the operating room," remarked the chief operator, "there's nothing like the lunch counter annex!"

"Why!" said the manager, "I thought they were growling about the lunch counter all the time!"

"So they are," replied the chief, "with one accord, but they ain't kicking on another thing!"

Wireless Telegraphy at the Yacht Races.

The Associated Press reported the yacht races, recently off New York Harbor, by wireless telegraph. The steam yacht "Mindora" followed the yachts over the course and reporters aboard reported the principal events of the contest to a shore station at Long Beach, L. I., whence the bulletins were forwarded to headquarters by telegraph. Barring some slight interference by another enterprise of the same character, the system worked very successfully. The Associated Press used the Marconi system pure and simple, an entire equipment and staff of operators having been sent over to this country by the Marconi Wireless Telegraph Company, of London, England, expressly to report the races.

Telegraph Communication with Lower California.

Lower California, although a short distance from Southern Cailfornia, has hitherto been cut off from direct telegraph communication with that section of the country, and with other parts of the world, but the deficiency is shortly to be supplied. The Mexican government has ordered the installation of a telegraph cable from the city of Guaymas, the terminus of the Sonora railway, across the Gulf of California, to Santa Rosalia, in lower California, from which point lines are to be immediately constructed to all the principal cities and towns on the peninsula.

"The Crisis," the most popular book of recent years, being read everywhere, the demand for it frequently exceeding the supply, not only presents a magnificently written story of absorbing interest, but at the same time, and delightfully interwoven with it, gives one of the most truthful, because unprejudiced, dramatic and fascinating histories of the Civil War yet produced.

Orders for this famous work, accompanied by express or money order for $1.50, will be filled, express charges prepaid, on the day of receipt, by addressing John B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Operators interested in the method of treatment of writers' cramp will find very complete information in the little booklet entitled "The Cure of Telegraphers' Paralysis," published by TELEGRAPH AGE, New York. Price 50 cents.

Those desiring electrical or telegraph books will consult their own interest by securing our book catalogue. We make it a point to fill all orders the same day they are received. Address TELEGRAPH AGE, 253 Broadway, New York.

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LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of three cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.]

BUFFALO, N. Y., WESTERN UNION.

Mr. J. F. Burgdorf is delighted with his bookkeeping department, it having been moved from the operating room to a large separate office. Among his new clerks are Mrs. Cuyler C. Smith, Miss Grace Milson and Miss Clinton.

Mr. George R. Benjamin, of New York, has completed installing a plant of the Buckingham Automatic Printing Telegraph system in the operating room, where the bookkeeping department was formerly located. It is working very satisfactorily, handling 100 messages each way, per hour, over one wire. Mr. W. J. Higgins is in charge. His assistants are W. C. Putnam, Phillip Repscher, Miss O. Blow, Miss L. Anderson and Miss E. V. Jarvis.

Miss N. R. Till has accepted a position with a private firm.

The enormous business being done at the Pan-American Exposition is being speedily and competently handled by the following: Bazaar Building main office, Mr. B. J. Eitelman, manager; Miss S. Brain, J. J. Birmingham and W. A. McCrae; Statler's Hotel office, Miss R. M. Purcell and C. J. Shear; Manufacturers' Building, Miss B. Hall; Horticulture Building, Miss H. B. Fischer; East Gate office, Mr. M. A. Collins; West Gate office, Mr. H. A. Coyle.

Cashier and Transfer Agent J. A. Pferd is an unusually busy man, the transfer service being the heaviest in the history of the Buffalo office. He is assisted by Frank J. Hickler, recently appointed transfer clerk. Mr. Hickler has been in the company's service a number of years, and has worked up from the bottom. Miss Margaret Smith has recently been appointed stenographer to Mr. Pferd, and Miss Lillian Hagle, telephone clerk.

Night Traffic Chief W. H. Stevens, recently returned to duty after an absence of six weeks through illness. Mr. George Sallaway acted in his place.

Mr. A. H. Labar has been assisting Chief C. H. Carter in the repeater department.

Mr. C. L. Guernsey has resigned, and is now receiving Associated Press at Jamestown, N. Y.

NEW ORLEANS, LA., WESTERN UNION.

Latest arrivals: J. N. Perry, Geo. Johnston.

C. A. Posey has resigned to accept a position in a broker's office in Jackson, Miss.

Miss A. G. Wedin, daughter of E. V. Wedin, of New York, paid us a visit shortly before leaving for home, and met a number of her father's friends.

A. Vinton, of Vinton, La., an ex-telegrapher who had charge of the Sassafras Island office in 1868, called to see his old friends Messrs. West and Wark. Mr. Vinton represents his parish in the State Legislature and succeeds himself at every election. He is rated as one of the wealthiest planters of that section. He is also extensively interested in oil; is a prominent Elk and numbers his friends by the score. Says he is as good at the key now as he was in 1868, and likes to drop around and see the boys when in the city.

Assistant Superintendent of Telegraph C. F. Annette, of the Illinois Central Railroad, was a recent visitor.

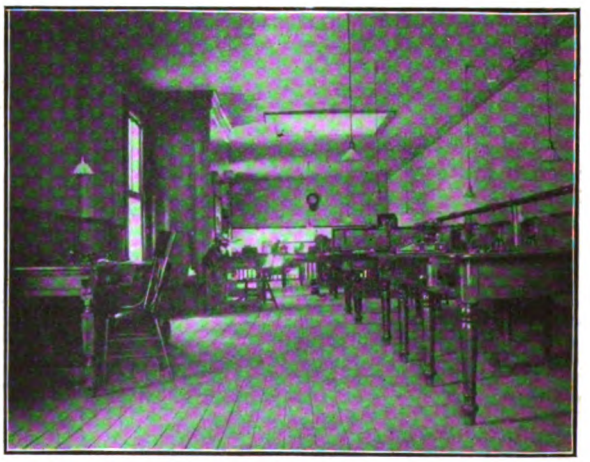
E. T. Smith, after a two months' stay in Port Gibson, Miss., has returned to this city.

Promising young telegraphers Matt Flippen and A. M. Carroll are among the hustling men in the way room.

In Private Secretary H. V. Mielley, the manager has one of the finest shorthand and typewriter men that can be found in the city.

LOS ANGELES, CAL., POSTAL.

This office has been moved to a much more desirable location. One more table has been added to the operating department and the switchboard enlarged to over twice its former proportions.



VIEW OF THE OPERATING ROOM, POSTAL TELEGRAPH-CABLE CO., LOS ANGELES, CAL.

A heavy business is expected during the coming winter.

The orange crop will be large, and will ripen early.

The personnel of the main office is as follows: Manager, R. R. Haines; bookkeepers, F. Wilson and I. J. Whitney; delivery clerk, Edward Eubenhagen, days, Mr. Flood, nights; operating department, W. J. Wallis, chief operator, days; C. L. Lewis, night chief; Hattie Hall, E. F. Kubal, Karl Wiegand, F. H. Merrill, L. C. McIntosh; day check, Edward Penders; night check, E. R. Barnett; Temple street branch, Miss Allen; Hollenbeck Hotel branch, Mrs. Hawkins.

Harry Long handles the Broadway branch, Logan leased wire.

C. L. Lewis has returned from San Francisco, where he has been enjoying a vacation.

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MEMPHIS, TENN., WESTERN UNION.

This office has recently undergone extensive improvement in the operating-room, a large room and hallway being added by the removal of partitions, thus giving an increased floor space of double the former capacity. A number of new quartette tables and several quad sets have been added. Chief Operator Ross and Wire Chief Johnson have just finished the installation of a number of Toye and Atkinson repeater sets, made necessary by the largely increased number of leased wires.

John H. Kelly, an operator well known to the fraternity, died in this city recently, of consumption.

Ralph Vestal, night traffic, has the sympathy of the office in the recent death of his little daughter.

Mr. E. E. Cord has just returned from a trip to New York and Canada. His improved looks would indicate much benefit derived from the outing.

Traffic Chief, Victor Crooker, and Miss Mary Byrnes, of the operating force, were recently married. They were recipients of many beautiful presents from the office.

On September 10 the marriage of W. D. Allen to Miss Myrtle F. Laws was celebrated. The office force handsomely remembered them.

Phillip M. Byrne has been appointed quad chief, vice A. V. Johnson, transferred to the managership of the Akron, Ohio, office.

E. F. Walker is very sick at his summer home. His position of manager at the Cotton Exchange is being looked after by Edward Roper, who, in turn, is succeeded at the Produce District by R. E. Griffey.

Recent arrivals: Messrs. T. J. and W. E. Richmond, R. I. Lane, J. T. Jenkins, G. B. Lumpkin, J. A. Latture, C. E. Mix, T. G. Gooch and G. A. Bischoff.

Departures: W. J. Kirkland and S. A. McGuire, who is now a broker at Helena, Ark.; J. Reilly, John Stewart, C. A. Willis, W. M. White, the latter of whom to accept a position as traffic chief of the Postal, this city.

Miss Nora Burke is visiting friends in Chicago.

QUEBEC, QUE., GREAT NORTH WESTERN.

A quad has been constructed by Chief Operator J. Barclay and Assistant Chief M. O'Reilly to River-du-Loup, Que., and a third quadruplex to Montreal, Que.

George Matthews and James Dunn have performed excellent work during this busy season on the first quad, Hector Cyr and J. Sheridan, of Montreal, doing likewise at night.

Michael Sweeney is the father of a boy. Our congratulations are extended.

Joseph Breen has accepted a position with Neuville Belleau & Co., brokers; Oliver Young, from Montreal, has gone with Nap Kirouac & Co., and Thomas Murphy, formerly with the Great North Western Telegraph Company, Quebec, and Operator Caron are both with A. R. McDonald & Co., brokers.

Fred Prevost, who has been here for the past two months, has accepted a position with the Canadian Pacific Railroad in the North West.

A new wire was strung this summer from Quebec to Hawkesbury on the Great Northern. The wire erected the previous summer from Montreal to Grand-Mere and Shawenegan Falls, has been extended to Quebec. A wire has also been constructed from Quebec to Murray Bay.

The new wire to Belle-Isle, via Chateau Bay, covers over 725 miles.

An operator rendering the name in a message addressed to the "Duke of York," "Duke of Corks," caused great amusement.

BOSTON, MASS.

Typewriters for sale, to rent and repaired. Remington, Smith, Densmore and all makes sold or rented on easy monthly terms to telegraphers. Send for samples, catalogues and full information to E. M. Bennett, Manager, The Typewriter Exchange, 38 Bromfield Street, Boston, Mass.

ST. LOUIS, MO., WESTERN UNION.

Mr. David S. Ryan, manager of the Western Union, Hot Springs, Ark., one of the large offices of the South, visited us September 12.

Mr. J. Newton Harpe, of New Holland, Ill., and Miss Lottie L. Link, of this office, were married September 18. They will make their home in St. Louis.

Mr. A. J. Merklin, a brother of Miss Anna Merklin, and Miss Anna Reuter, of Holden, Mo., were married September 18, at Holden. They will reside in this city.

Miss Viola Hart, one of our bright young operators, is quite an amateur writer, and is a frequent contributor to the local press.

The Hon. "Dip" McCruden returned recently from a vacation of several weeks spent on his farm.

Said Mike O'Neill to Billy Offer:

"Why would the average division chief be a success as an entomologist?"

"Dunno, give it up."

"Because he knows all about bugs!"

MONTREAL, QUE., GREAT NORTH WESTERN TELEGRAPH COMPANY.

It is with pleasure that we announce the return of John Moore to the office, after a lingering illness.

Herbert Keating is ill with typhoid fever.

Traffic Chief Rivet has returned after a two weeks' vacation.

Frank Cochrane and Herbert Baker paid a visit recently to old Quebec.

Superintendent Edwin Pope and Chief Operator J. Barclay, of Quebec, together with Thomas Murphy, operator for Broker McDonald, also of that city, were late visitors to this office.

Business is keeping up. The royal visit and the death of the President of the United States made things lively here. It was observed that most of the members of our staff wore black ties on the day of the funeral.

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NEW BEDFORD, MASS., WESTERN UNION.

Miss Frances P. Cornish, formerly assistant clerk with the Western Union at New Bedford, has gone with the New England Telephone and Telegraph Company as operator and clerk to the general manager of the South Eastern Massachusetts division.

"Jim" Marvel, for years with the consolidated road at Tremont, Mass., has entered the electric railway field, having accepted a position with the New Bedford and Onset Street Railway Company as assistant superintendent, with headquarters at Wareham, Mass. G. W. Broderick, formerly with the Consolidated at Abington, succeeds Mr. Marvel at Tremont.

A. H. Mansfield, for fifteen years with the Canadian Pacific Railway, and late of Atlin, B. C., is now agent and operator for the Consolidated road at Marion, Mass. Mr. Mansfield assisted in the construction of the Government line to Dawson City, Klondike.

PHILADELPHIA, PA.

My Motto—Honorable Dealing. D. A. Mahoney, Special Representative, the Philadelphia Typewriter Ex. Typewriters sold or rented. Small monthly payments. **Specialties:** $40 and $50 rebuilt Remingtons, Smiths and Jewetts. Address, care W. U. T. Co., cor. 10th and Chestnut Sts.

WESTERN UNION.

Owing to illness of the manager at Freehold, N. J., A. R. Barlieb, of this office, has been detailed for duty at that place as manager pro tem.

S. S. Peck, Albert Bigler and A. W. Rebstein have left us to resume their respective studies at dental and medical colleges. These embryo doctors deserve a great deal of praise for striving to advance themselves in other professions.

Among those who have visited the Pan-American at Buffalo are Miss Sachs, Miss Bullen, C. B. Wood and A. K. Hunsberger.

J. B. Hiestand has resigned to accept a more lucrative position with Armour & Co., this city.

E. J. Hennessey and E. J. Mullen enjoyed a week's vacation visiting different points of interest through this State.

Southern Wire Chief I. N. Barto, visited friends in Scranton, Pittston and Wilkesbarre while on a week's vacation.

Manager Hudgins, of the 307 Walnut street office, spent a week at the Pan-American, E. R. Beidelman, of this office, looking after Mr. Hudgins' duties.

Manager Fuss, of the Delaware Breakwater office, was a recent visitor.

POSTAL.

A statement was made in our last letter announcing the appointment of Mr. O. H. Phillips to the North American staff. Subsequent arrangements, however, were made and Mr. Phillips was attached to the main office night force.

The vacation season is about ended. Manager Frank Burns, of the 8th and Wood streets office, enjoyed a delightful trip to the Pan-American Exposition and elsewhere.

Mr. J. H. Nauer, with a broker, also enjoyed a couple of weeks visiting numerous friends in Canadian towns.

Mrs. E. J. Matthews has returned after five weeks' absence.

'Tis indeed an ill wind that doesn't blow somebody good. While the whole nation was cast into gloom and sorrow at the death of President McKinley, the bunting market experienced such a decided boom that Manager Wright, of the dry-goods district office, was able to report a two hundred dollar increase in receipts for the month of September.

Mr. J. A. McKain has resigned to go with the Chester Iron and Steel Co., at Chester, Pa., his home.

Other departures and resignations are: Messrs. Heeps, Jester, Schwinger and Lemisch.

Arrivals: Messrs. L. S. Miller from Reading, Pa., Frank Farley, Western Union, city, and Philip Behan.

Traffic-chief Geo. W. Dunn, was at Scranton, Pa., as a delegate to a political convention.

Mr. W. T. McCorkle is now with a broker.

Night Traffic-chief Walton Smith is justly proud of his son, who has won a scholarship on his own merits and entered the State College at Bellefonte, Pa.

Messrs. Horace Holtzinger and Jay A. Thomas were assigned duty at the cricket grounds during the recent international games played there.

Mr. J. H. Gingrich, at Harrisburg, Pa., is doing some clever photographic work with the X-rays.

An objection overcome! A portable base attachment with Twentieth Century Key permits its use on any desk without permanent fastenings. No operator needs to remain handicapped by a lost grip. Use the Twentieth Century Key. Information cheerfully furnished. Leo Miller. (Adv.)

OMAHA, NEB., NOTES.

Will H. De Pue is working the day wire for The Associated Press.

W. H. Hooper, assistant night chief operator at the Western Union, and Miss Mary E. Carmack, of Plattsmouth, Neb., were married quietly September 28. Mr. Hooper is one of the popular men at the Western Union, where he has been for fifteen years.

"Hank" Johnson, recently with a commission firm in Sioux City, has accepted a similar position with Boyd & Co., in this city.

Elmer C. Huntley is working for Boyd & Co., on the stock board.

Harry Lee, for some time cashier for Boyd & Co., has gone to Sioux City for a commission house.

O. A. Morris has been permanently assigned to the second wire at The Associated Press office. He came from Evansville and was formerly employed at Cincinnati and Indianapolis.

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CHICAGO, ILL.

Typewriters bought, sold, rented and repaired. Renting a specialty. Also Agency for "Telegraph Age." Telegraphers' Typewriter Co., Room 5, 122 La Salle St., Chicago, Ill.

POSTAL.

W. G. Phillips has resigned to go to New Orleans. Mr. Phillips was well liked by the entire office, and we are sorry to have him go. Mr. David Duff, of the Pittsburg bonus wire resigned to accept a position at Montreal, Que.

Business is now in its normal condition.

C. Rollins, David Duff, Wm. Roberston and S. Simpson were sent to Buffalo to help out during Mr. McKinley's illness, while L. T. Townsend and John Biggins went to Canton, Ohio, one week later.

John Brosnan, who was ill for two weeks recently, is now at work.

Henry Heisler recently passed a pleasant vacation of two weeks in the north.

Martin Adams, Thomas Powers and Arthur Lassman were recently married. The force gave each of them a suitable token of esteem.

Messrs. W. H. Conklin, F. Flint, F. W. Froehle, John Wondra and D. N. Williams were appointed to the 11:30 split trick.

S. J. Thomas and David Hamilton are on vacation; O. T. Anderson is on sick leave.

W. I. Williams is the happy father of a son.

Mr. Beans Hensler is again with the Western Union Telegraph Company at 11 Wabash avenue.

WESTERN UNION.

Our estimable Assistant Chief Operator C. H. Finley, has started upon a much earned vacation, after the trials and tribulations of an unusually heavy summer's business. We presume Mr. Finley has taken his dog and gun, and will enjoy some good hunting, as only he can.

Traffic Chief F. Richardson reports a fine time among the old timers at the reunion at Montreal; he also visited Boston and other places.

Monday, October 1, the entire Illinois division was moved to the 10th floor, leaving the Wisconsin wires in charge of the St. Paul division. This move was made in order to overcome the congestion on the 9th floor due to increasing business, and to make room for some spare quad sets. The 10th floor now looks like a full fledged operating room with full equipment of everything necessary. The Illinois division is in full charge of Mr. Otto Enking.

A son was born to Division Chief Enking on October 2.

Mr. Paul Stillman, formerly assistant to Judge Laidlaw, has been appointed night division chief of the Illinois division, on the 10th floor; he has congratulations of all, and we know he will prove an efficient executive. He has celebrated the event by subscribing for THE AGE for one year.

Mr. Harry Austin has the congratulations of all in his marriage to Mrs. Mate Russell Austin, of California.

Geo. Porter, who some time since suffered a shock of paralysis, affecting his entire left side, returned to the office October 7, wholly recovered.

Former Manager Scoville, of Cedar Rapids, Iowa, has been assigned to the night force.

Miss Alma Hahn was married to Fred T. Proctor, of The Associated Press, September 18.

Mr. and Mrs. Lewis Benson, who have been sojourning in Michigan, returned greatly benefited by their trip.

Mrs. Mark Smith met with a painful accident October 3 while coming to work. She fell and broke her arm in two places, but pluckily continued on, and reported for duty, but was of course immediately sent home to have her injuries attended to.

MONTREAL, QUE., CANADIAN PACIFIC.

The death is announced of Mr. George Ivory, a well known telegrapher, who died at his home, Mountain Grove, Ontario, on September 11, after a lingering illness.

Mr. W. F. Gainfort, of the Sherbrook circuit, who is one of the returned Canadian scouts from the South African war, has received the South African medal presented by His Royal Highness, the Duke of York. Mr. Gainfort received many congratulations from his confrères of the office.

Among the lucky ones who had the honor of accompanying the royal train were Messrs. J. F. Richardson, electrician; W. G. Medley, W. G. Bancroft, G. H. Ferguson, and Mathew Fanning.

A very large amount of business was handled in this office while the royal party was journeying from Quebec to the Pacific Coast.

During the past month a large number of ladies and gentlemen have visited the new operating room, which is becoming very attractive on account of the beautiful scenery surrounding the new building. Among the recent callers were Mr. and Mrs. W. T. Robinson and C. Hubbard, of Ottawa; C. McLea, Winnipeg; P. W. Snider, St.

$100 Reward, $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages and that is Catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials.

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John, N. B.; S. S. Dickenson, Canso, N. S.; John Currie, and W. H. Gomery, of The Associated Press, Buffalo, N. Y.

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WESTERN UNION.

Mr. George Cole, former manager of the Western Union, at Columbus, O., and now interested in telephone and district companies in that city, was a recent visitor.

Miss Kate E. Donovan, for many years wire chief of the Long Island division, and recently transferred to the city line switch, has resigned. Mr. Muddell fills the vacancy in the Long Island division.

Many who had been held back on their vacations incidental to the increase of business occasioned by the death of President McKinley and the yacht races, are taking them now. John B. Hurd is on a trip to Washington, D. C., W. T. Rogers and C. A. Kilfoyle are in the Catskills, and John Brant is in Connecticut.

J. G. Kelly, who has been sick for some time and yet who has kept at his work until recently, has been taken to the Home for Consumptives, Brooklyn.

Dr. George Ryder, son of E. Ryder, manager at Hartford, Conn., paid us a visit recently, while on his way to Worcester, Mass., where he will locate permanently. He carries the good wishes of many Hartford and New York friends.

Martin Durivan has returned from Long Branch, N. J., where he acted as chief operator during the summer season, and has resumed his duties as a traffic chief in this office.

Willis H. Jones, of this office, is away on a well earned vacation of two weeks.

Returned from vacations: W. W. Scott, B. J. McLoughlin.

Resignations: F. A. Post, R. Templeton, to join Batchelors' Honeymoon Co.; J. H. Ryan.

Appointments: T. J. Donohue, Whitestone department; D. F. Baker and A. C. Barnhardt, day waiting list; H. Gersch, night waiting list.

Michael F. O'Brien died on October 10, the result of a fall from his window to which he went some nights ago to secure a broken blind. Mr. O'Brien, who was born in New Haven, Conn., on May 1, 1851, had his first telegraph experience in the Western Union office in his native city, came to New York in 1877. From 1881 to 1884 he was night manager of the American Rapid Telegraph Company, re-entering the Western Union service when that company absorbed the former concern. Mr. O'Brien was one of the best known operators in New York city, and was for the past ten years connected with the Commercial News Department. Memorial services were held Sunday evening, October 13, and were largely attended.

POSTAL.

Vacation season being over the force of the office is nearly up to its numerical standard, but owing to the enormous increase of business it is kept closely occupied to keep the files clear.

W. E. Todd has recently returned from a five-day trip to Scranton, Pa., Postal office where he has been installing an entire new outfit in that office consisting of a 24 jack switchboard, keyboard, repeater, and quad set, also three single sets. This improvement makes Scranton an up-to-date office in every respect and reflects great credit on Mr. Todd. Manager Rigdon and assistants of Scranton, are very proud of the fine appearance of that office.

Mr. J. J. Bundy, formerly of this office, and who resigned several months ago on account of illness, is now with the New York Central Railroad at Corning, N. Y. His many friends will be gratified to learn that he has recovered his health.

Eastern Wire Chief J. A. McNulty, and Night Manager J. J. Whalen are away on their vacations.

Resigned: J. J. Fourney.

Mr. W. H. Matthews, recently of Superintendent Usher's office, has been appointed chief clerk of the service department.

Yacht race week was a notable one for the operators who were sent to the Highlands to handle the press work from that point. An unusually large amount of matter was handled in an unexceptionably fine and rapid manner under the supervision of Assistant Manager J. F. Skirrow, of this office, whose arrangements for prompt handling the matter filed were as complete as it was possible to make them. His portable dynamos, engines and quads were a perfect success.

The 20th Century Key prevents the loss of grip and cures cases of long standing. For particulars address E. S. Russell, agent, 253 Broadway, New York. (Adv.)

The Annual Report of the Western Union Telegraph Company.

The annual report of the Western Union Telegraph Company, submitted at the shareholders' meeting, October 9, shows an increase of $1,895,582 in gross earnings for the twelve months to June 30 last, and an increase of $519,886 in net profits. The company now operates 872,766 miles of wire and 23,288 offices.

In his report, President Eckert says that there were added to the company's system during the year 884 miles of poles. There was an increase of 39,613 miles of wire. There were 338 additional offices established. The increase in the number

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of messages transmitted was 2,289,265 greater than for 1900. Of the increase in the total revenues for the year, $885,503 came from commercial messages, press dispatches, and election returns, $363,072 from leased wires, and the balance of $347,006 from sundry other sources.

For construction $1,461,158 was expended in new and additional wires, etc. All reconstruction is included in expenses before a balance is struck. The surplus account of $9,319,286 represents undivided profits, invested from year to year in new lines, real estate, and other valuable assets.

Stuyvesant Fish and Samuel Spencer were elected directors of the company, succeeding Wm. F. Cochran, resigned, and George Coppell, deceased. The other directors were re-elected.

Death of Daniel E. Martyn.

Daniel E. Martyn, night chief operator of the Western Union Telegraph Company, at Kansas City, Mo., died on September 15, as recorded in our issue of October 1. Death was due to a blood clot on the brain. On Thursday evening previous to his death, he seemed in his usual good health, but soon after coming on duty was seized with a



THE LATE DANIEL E. MARTYN.

violent headache and went home. A short time after reaching there he lapsed into a state of unconsciousness from which he never rallied.

Mr. Martyn was born in Detroit, Mich., in 1839. He began his telegraphic career at the age of 18 years, at which time he entered the employ of the Ohio and Mississippi Telegraph Company. When the Civil War began, he joined the Federal forces and became a military operator for the government, holding this position all through the war, being stationed most of the time in Kentucky. At the close of the war he re-entered the service of the Ohio and Mississippi Telegraph Company, remaining with them about two years, when he went to Kansas and was appointed manager of the Western Union Telegraph office at Leavenworth, that State.

In 1877 he was transferred to Kansas City as night wire chief, and in 1884 was promoted to be night chief operator, which position he held during the remainder of his life.

Few men were esteemed more highly or held with greater respect by both officials and subordinates among the profession. His wife and one son survive him.

Obituary Notes.

Charles Hodge, aged 25 years, an operator at Jefferson, Ala., shot and killed himself on September 25, during a fit of insanity caused by excessive cigarette smoking.

John M. Moffat, an old time telegrapher of New York, but for the past ten years at Dunsmore, Pa., died at that place on October 7. For many years Mr. Moffat was secretary of the New York Telegraphers' Aid Society and was chief operator in the Western Union service at 195 Broadway. He was well and favorably known in telegraph circles.

John Neville, of New York, for many years the Wall street representative for The Associated Press and The United Press, and latterly secretary of the International Cable Directory Company, New York, publishers of the Western Union Telegraph Code, was killed by a train at Elmira, New York, on October 2. Mr. Neville was well known in telegraph and financial circles. In fact, he was considered one of the best authorities on financial affairs in the country.

William H. Eckman, 60 years of age, a well known old time telegrapher of Cleveland, O., died instantly of apoplexy in New York on October 6, while walking on the street. Mr. Eckman came to this city two years ago. About seven years ago he took an active part in local politics in Cleveland, and at one time was city clerk. He was for some time editor of Winslow's Magazine. Since he has lived in New York city he has corresponded for the Cleveland Plain-Dealer. Mr. Eckman, who was familiarly known throughout the country as "Billy" Eckman, was a member of the United States Military Telegraph Corps, and his death will be a shock to a wide circle of telegraph acquaintances.

Richard Sadler Cubitt, aged 85 years, died at Pilot Town, La., on September 25. He assisted in constructing the ocean telegraph line to the Passes. During the Civil War he was military telegraph operator for the Confederates, and served his country well until captured and made a prisoner of war by General Ben Butler. After the war he was commissioned a bar pilot by Governor Kellogg. For over twenty years he was justice of the peace, and so stern was he in the enforcement of law that he was feared and avoided by evil doers. He was judge, jury and supreme court all in one, often without the legal right to do so, fining heavily both parties to a criminal suit, which was rarely ever contested or appealed, for fear of future judicial

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wrath. He was widely known and his death removes the oldest human landmark in lower Plaquemines.

William J. Bodell, for a long time manager of the Western Union Telegraph Company, at Fortress Monroe, Va., and a well known member of the United States Military Telegraph Corps, died at his home at Fortress Monroe, Va., on October 7, in the sixtieth year of his age. Mr. Bodell was born at Greenville, Pa., March 12, 1842. He entered the army in 1862, and in 1863, being detailed as clerk in the Military Telegraph Corps, at Washington, he learned telegraphy and afterwards performed some clever work as cipher operator. In 1866 he became manager of the American Telegraph Company, at Fortress Monroe, and when that company became merged with the Western Union Telegraph Company he was still retained as manager of the office, which he relinquished five years ago to accept a responsible position in the government quartermaster's office, at Washington.

Personal Mention.

Mr. W. H. Baker, general manager of the Postal Telegraph-Cable Company, New York, has returned from a western business trip.

Mr. Hugh A. Allan has been elected to the presidency of the Montreal Telegraph Company, filling the vacancy created by the death of his father.

General Thomas T. Eckert, president of the Western Union Telegraph Company, has been elected a director of the Bowling Green Trust Company, of which Edwin Gould is president.

Resignations and Appointments.

Mr. L. G. Lobaugh has been appointed chief operator of the Western Union Telegraph Company, Pittsburg, Pa., vice F. L. Bender, resigned to enter the telephone service.

Mr. W. Branch Wainwright, of Seaford, Del., has been appointed assistant superintendent of the New York, Philadelphia and Norfolk Telegraph Company, with headquarters at Seaford.

Mr. Benjamin H. Moore, chief clerk in the office of Superintendent C. C. Adams of the Postal Telegraph-Cable Company, Philadelphia, Pa., has been appointed manager of that company's office at Baltimore, Md., vice F. A. Grasty, resigned on account of ill health.

Mr. E. W. H. Cogley, assistant superintendent of the leased line of The Associated Press, New York, a position which he has held for seven years, but with which association he has been connected for sixteen years, has resigned to engage in other business. Mr. Cogley has handled press circuits for different associations continuously since 1865, which is no doubt by far the longest unbroken record for press service in this country.

With Mr. Cogley's retirement the position of assistant superintendent of telegraph has been abolished, and the work heretofore performed by him devolves upon H. R. Clark, day chief, and C. L. Morris, night chief.

New York Visitors.

Mr. Frank Jaynes, superintendent of the Western Union Telegraph Company, San Francisco, Cal.

Mr. H. P. Dwight, president and general manager of the Great Northwestern Telegraph Company, Toronto, Ont.

Mr. C. E. Sawtelle, manager of the Postal Telegraph-Cable Company, Cincinnati, O. Mr. Sawtelle was accompanied by his wife.

Mr. John Campbell, at one time superintendent of the Postal Telegraph-Cable Company, Pittsburg, Pa., now in the roofing business in the Smoky City.

Mr. Chas. E. Page, manager of the Western Union Telegraph Company, Cincinnati, O. He came to New York to meet his wife and daughter who arrived from Europe a few days since.

Mr. I. McMichael, superintendent of the Western Union Telegraph Company, Minneapolis, Minn. He attended the International Yacht Races and was much pleased with his first New York visit.

Miscellaneous Items.

Mr. A. P. Velie, of The Associated Press, New York, has resigned to accept a position with a newspaper. Mr. Velie had been with The Associated Press for the past ten years.

Six telegraph operators in the Police Department, New York city, were sworn in as sergeants at Police Headquarters, October 9. Although for the last three years they have been wearing a sergeant's uniform they were not recognized as such and did not draw sergeant's pay. This victory ends a fight that started in January, 1898, when Brooklyn and New York were consolidated and there was a reduction of pay.

The articles, "Some Points on Electricity," published regularly in TELEGRAPH AGE, are filled with practical information for the up-to-date operator. Send for a sample copy.

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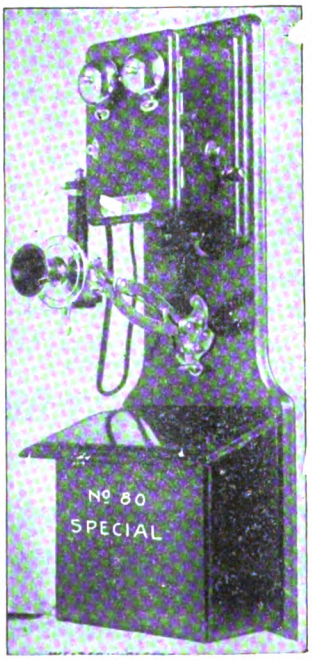
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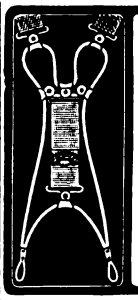
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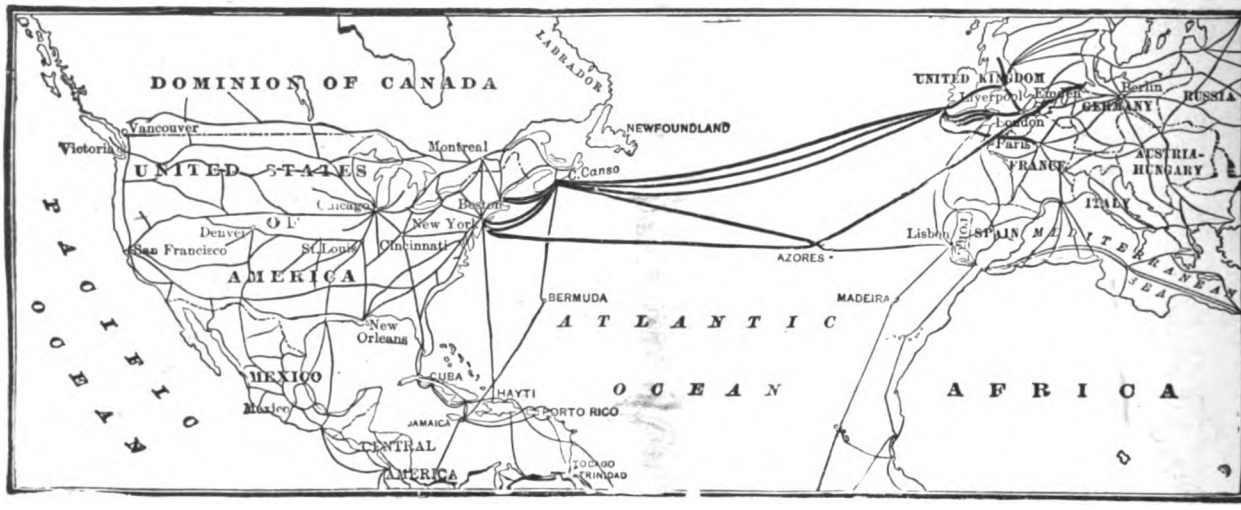
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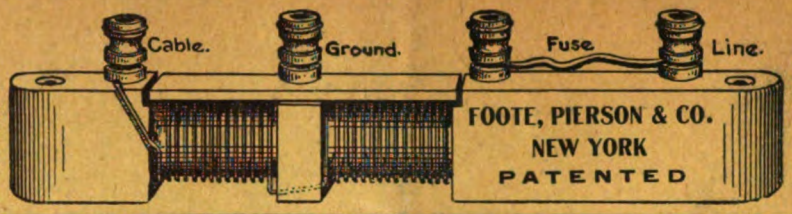
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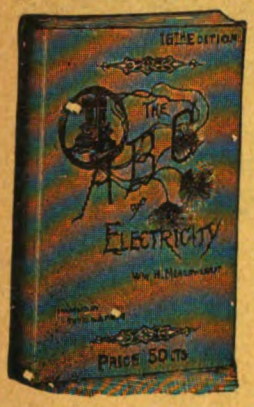


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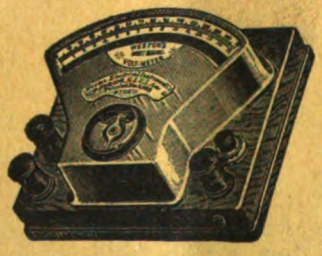
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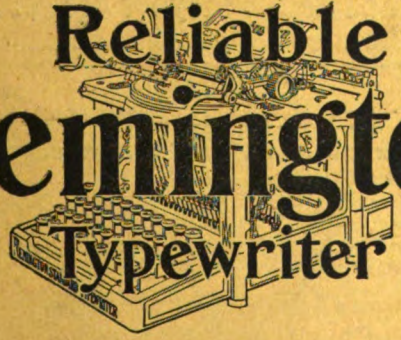
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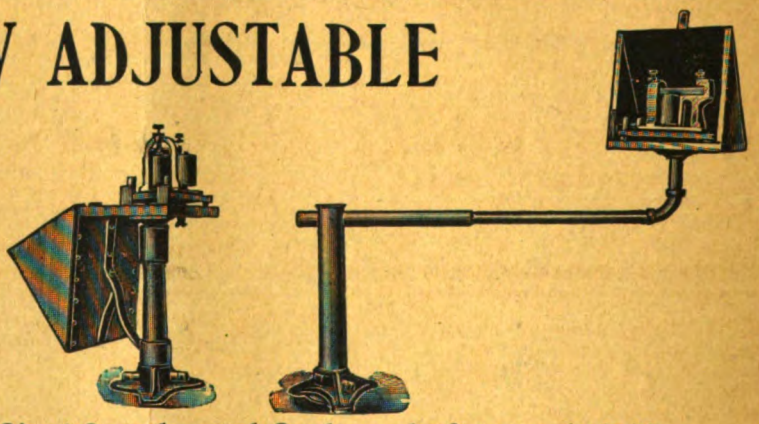
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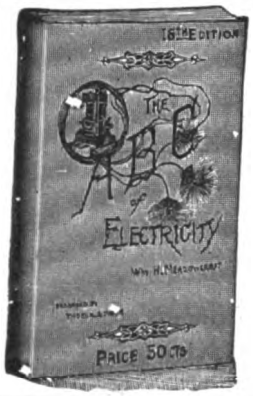
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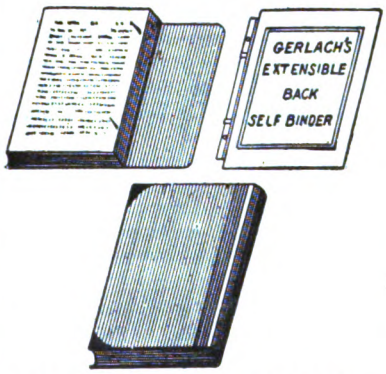
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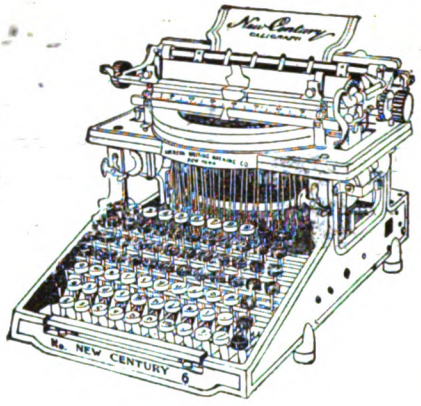
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THE TELEGRAPH AGE.

No. 21. NEW YORK, NOVEMBER 1, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

The Equipment of a Modern Telegraph Office, Continued.

BY WILLIS H. JONES.

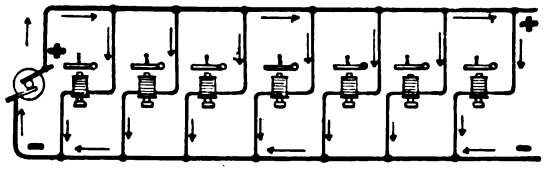
[In the September 1st issue of this journal Mr. Willis H. Jones began a series of articles showing the complete details of equipping a modern telegraph office. Beginning with the proper selection of the dynamos, his aim will be to carry the reader step by step from the cellar to the operating department; thence through the labyrinth of house wires underneath the floor to the various apparatus, stating the size of wires to be used for the main and sub-leads, and last but not least, to give a full and accurate reason for each move.

The series will be a complete handbook for any one contemplating the instalment of a new office or making alterations in an old one. The value of these important articles will be such as to interest a wide circle of readers, and those who desire to follow them in their consecutive order should send in their subscriptions at once.—Editor.]

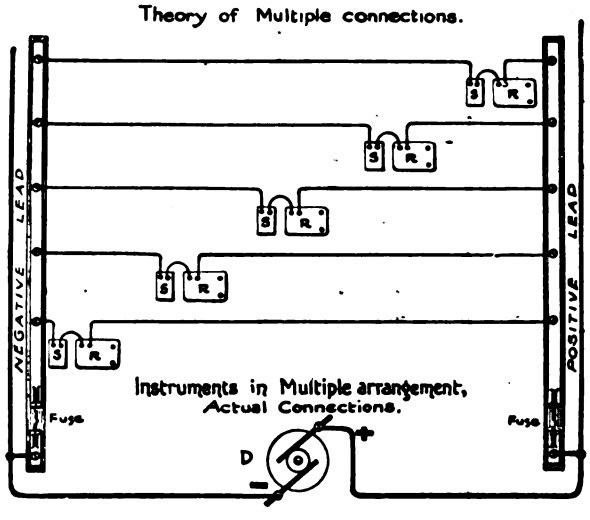
In the preceding instalments of this article, the house wiring for a multiple arranged local sounder system was illustrated and described up to the point where the desk wires come up through the floor underneath the tables. The next move will be to show the manner in which the instruments are connected in circuit.

Now, the first thing to do is to fasten two fuses to some convenient and protected part of the woodwork underneath the desk, one for each polarity of current. The importance of fuses is another matter which should never be forgotten. No apparatus should ever be connected directly to a main battery lead, not even the dynamo itself. Here is the order of arrangement invariably to be followed: First the dynamo, then a fuse; then the leads, and again a fuse; then the sounders, and finally (for multiple circuits) a second fuse.

The first accompanying diagram illustrates the multiple arrangement thoroughly, while the second cut shows the actual binding post connections and desk wiring through a single line relay contact points and sounder. It will be seen that the fuse holder consists of two separate bars of brass connected together by a small fusable wire. To the



Theory of Multiple connections.



Instruments in Multiple arrangement, Actual Connections.

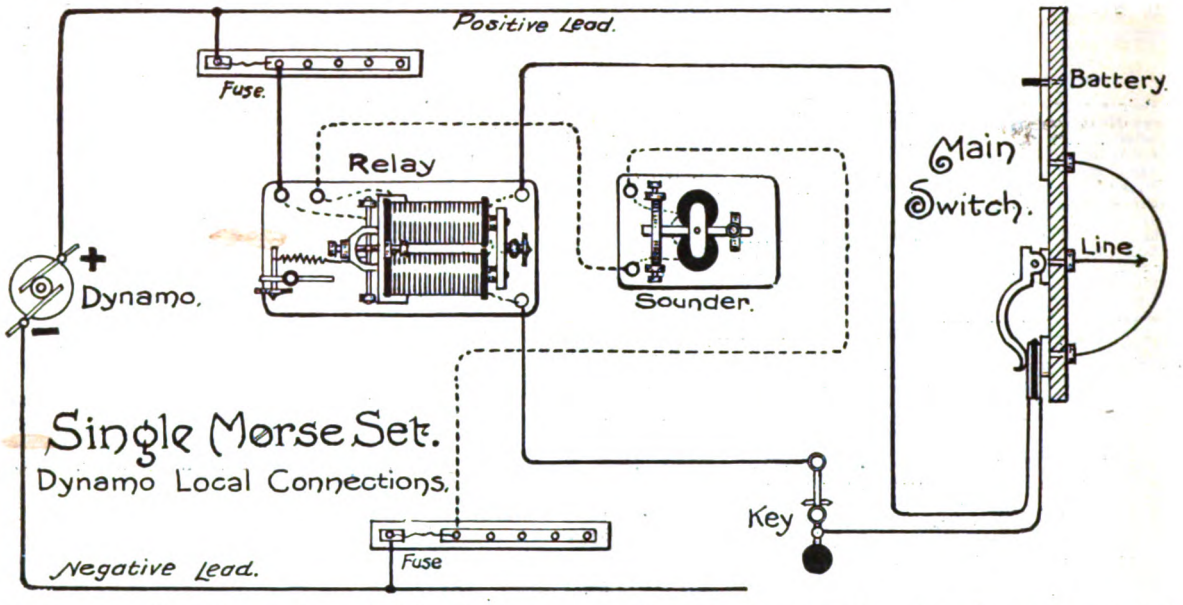
longer bar, as many similar circuits may be fed as there are disks on the latter for connections; but it is best not to feed more than four to eight multiple circuits from one fuse, for the reason that an accidental cutting out of the resistance coil of any one sounder by means of a pen or other metal accidentally placed across the binding posts would instantly melt the fuse and "open" every circuit in the combination until a new one is substituted. On account of these temporary interruptions to so many circuits at one moment it might be argued that such a combination would be unadvisable, yet the arrangement has its advantages in other ways. The plan certainly lessens the total number of fuses required and simplifies the running of the desk con-

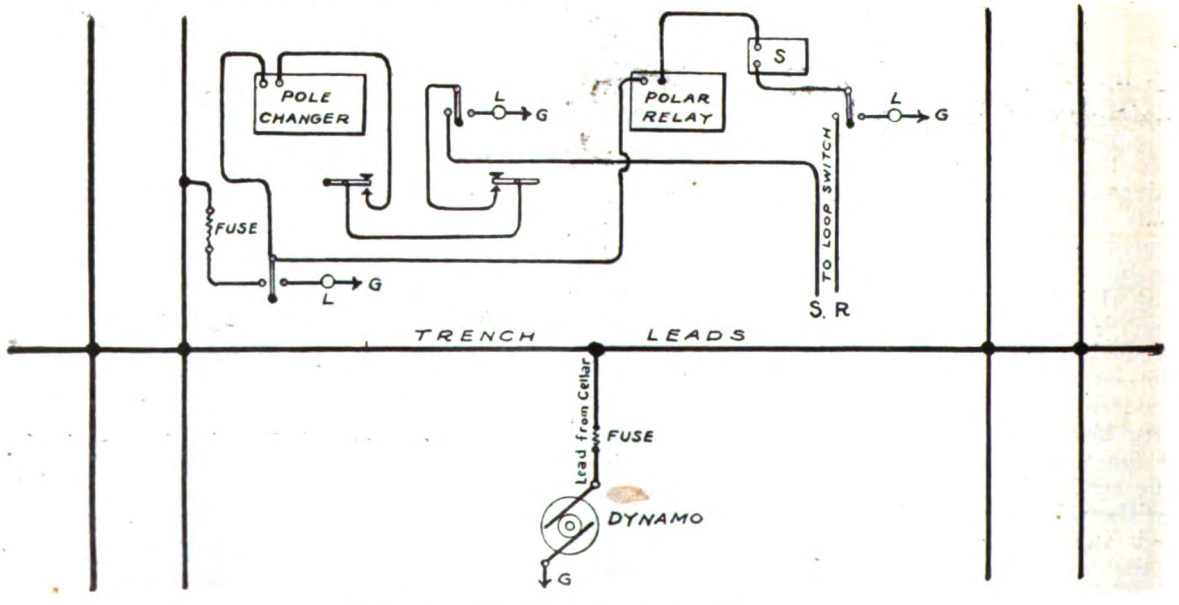
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nections; and last, but not least, it helps to locate a "blow out" quickly, as every chief operator should carry a supply of fuses about him. Such interruptions, however, should not be very serious.

The size of fuse, as measured in amperes, employed for multiple local circuits depends upon how much current will be drawn through it by the group of sounders attached to the brass disks on the fuse holder. Thus eight sounders requiring one-quarter of an ampere of current each, would demand in all two amperes. The melting point of the fuse must necessarily be of a greater value than this, or it would "blow out" the moment all sounders close together; hence it follows that a value which will safely carry the maximum current with a margin to spare, is the guide for ascertaining the required size. For local circuits of this kind, where the number of sounders in each group does not exceed eight, a 3-ampere fuse usually gives general satisfaction.

We will now take up the series local circuit arrangement. This concerns all sounders worked on pony wires or other conductors which are grounded at the distant terminal; and, as heretofore stated, is especially advisable for multiplex apparatus where the local connections are extended to the loop switch for convenience in connecting broken or newspaper loops therewith when so desired.





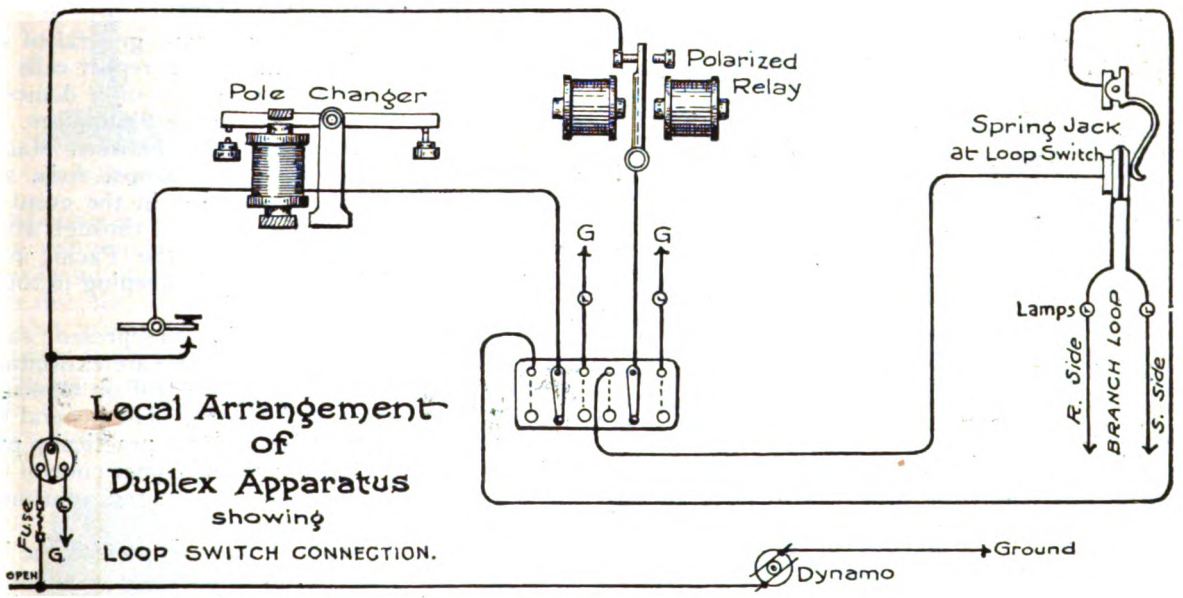
FLOOR WIRING FOR GROUNDED LOCAL CIRCUITS.

It is usual to employ 4-ohm sounders for such circuits, although 20-ohm instruments are preferred by some. The writer prefers the lesser winding, for the reason that the "cutting in" or "out" of a branch office sounder will not alter the existing strength of current in the loop to so great an ex-

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tent as it would if the former was higher wound. For example: In a built-up circuit containing a total resistance of 100 ohms, including all sounders in circuit, the withdrawal of one 4-ohm instrument would increase the value of the current but 4 per cent., while the "cutting out" of a 20-ohm sounder in the same length circuit would make a difference of 20 per cent., quite an effective alteration.

Of course, it may be argued that a compensating resistance may be substituted for each withdrawal, but unless such resistance be automatically inserted in the spring-jack by the mere act of "cutting out" at a branch office, the suggestion is hardly feasible, as those making such changes are liable at times to forget all about the compensating wedge, and two such failures on one circuit would nearly double the strength of the current in the conductor and thereby necessitate a readjustment of the remaining sounders in circuit; not to mention the danger of overheating the conductor which may possibly be in an underground cable. The removal of two



4-ohm sounders would hardly be noticed, hence the preference for that winding.

The plan of house wiring and size of conductors for the leads in a series system is very similar to that arranged for the multiple circuits, as may be seen in the third accompanying diagram. The only difference in the plan of wiring is, that as one pole of the dynamo is grounded, but one lead is brought up stairs, and consequently but one "grid" of sub-feeders required in the floor trenches. The main lead should extend along the full length of the room, as shown in the cut, to which cross feeders may be tapped at right angles thereto, and laid in trenches running underneath each row of desks; or, at least, under such desks as are equipped or likely to be equipped with multiplex apparatus, at some future date.

The desk connections are then made as follows:

Tap the main cross lead underneath the duplex table with a No. 12 or 14 gage insulated copper wire and attach the free end of it to a one or a one and a half ampere fuse, the other end of which latter should be connected to the lever of a three-point switch fastened to the woodwork underneath the desk.

From the left-hand disk of this switch run a wire through the coil of the polechanger to the left-hand lever of the double three-point switch which is situated on top of the table. For the receiving sounder tap the sending leg near the lever underneath the desk, as shown in the cut, and run it through the coil of the receiving sounder to the right-hand lever of the same double three-point switch.

To the right-hand disks of each of the top-of-the-table-switches run a wire through a lamp resistance to the ground wire. The right-hand disk of the battery switch under the desk should also be grounded, but no lamp or other resistance must be inserted there.

To the left-hand disks of the double switch the sending and receiving branch office legs may be respectively attached, if the connection is to be permanent; or those disks may be connected with spring-jacks in the loop switch (see 4th diagram) where any loop desired may be inserted and controlled by the operation of the duplex aparatus.

It will be seen that the fuse furnishes current for but two instruments; that is to say, for one duplex circuit.

For quadruplex apparatus a duplicate tap from the main lead, with separate fuse, wire, and switches must be provided for the neutral side, just as though there was no connection whatever with the main line upon which both sides work.

(To be continued.)

"Say, everybody around here seems to be a chief of some sort," declared a first-nighter in the operating room, "and the check boy and me are the only ones doing any work!"

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Business Notices.

Anyone can be a long distance sender if he uses a Twentieth Century Telegraph Key. Address, Foote, Pierson & Co., 82-84 Fulton street, New York.

Farr & Farr, telephone manufacturers of Chicago, Ill., whose advertisement appears in this journal, are manufacturing short private line telephones used for factories, houses, etc. This firm makes four kinds of telephones for this use and guarantee them to give entire satisfaction and are pleased to forward their circular to any person who may ask for it.

Elsewhere in our columns will be found the advertisement of Eacutt & Cawthern of 86 Lasalle street, Chicago, Ill., who advertise a typewriter cleaner, a little brush which ought to find a ready market in telegraph offices. The inventors of this useful device are old telegraphers, and it is to be hoped that their friends in the profession needing an article of this kind will communicate with the firm. Mr. Eacutt, who was formerly an operator, is now a banker, and Mr. Cawthern is at present an operator on the Board of Trade in that city.

The Kerner Electric Company has been organized with headquarters at 17 West Forty-second street, New York, the organizers being Marion H. Kerner, an Old Time and United States Military Telegrapher, of the Western Union Telegraph Company at 195 Broadway, and Paul C. Oechsle, a well-known electrical engineer of this city. As both of these gentlemen have had a wide experience in electrical matters, it is safe to predict that the new firm will meet with deserved success. General electrical repair work will be their specialty, although they will carry a full line of electrical goods of all kinds.

Washing day, in all well regulated families, next to Sunday, heads the important events of the week, and its consummation has from time immemorial too often taxed the strength and patience of the housewife. To render this important, unavoidable and sanitary duty, fraught with weariness, less laborious, has been the hope of many a tired woman. It seems that this longing is to be realized early in this new century, for "The 1900 Washer Co.," of 56M State street, Binghamton, N. Y., have perfected a family washer that is simply marvelous in its helpful powers. An advertisement in another column tells all about it, and every reader who loves his wife should carefully read what is there stated. A free test of the washer may at least be had, for the company, with full confidence in its machine, offers to send it without charge for a 30 days' trial.

A field of investment where small savings, steadily accumulated for a few years, will bring a sure and liberal income for life, is hard to find; but one is offered in an agricultural enterprise in tropical Mexico, with which I am connected, and which is being conducted on the co-operative plan—a plan insuring the same protection to the person who invests $5 a month as to the one investing many times that amount, and preventing, absolutely, the freezing out of even the smallest investor; at the same time practically guaranteeing a yearly return of from 15 to 25 per cent., or more, on the amount invested. I want to secure an Agent in each of the large telegraph offices of the country, outside of the State of Ohio and that part of Pennsylvania lying west of Harrisburg, to interest telegraphers in this proposition, and for such service I will pay a handsome commission. For full particulars address Frederic N. Bassett, 608 Ashland Block, Chicago, Ill.

Recent Telegraph Patents.

E. and E. J. Lavers, of Brooklyn, N. Y., have been awarded a patent for a signal telegraph.

A patent has been granted to C. E. Diehl, manager of the Postal Telegraph-Cable Company, at Harrisburg, Pa., for a system of quadruplex telegraphy.

Pacific Cable Needed.

Gen. Henry C. Corbin, adjutant general of the United States Army, in his annual report calls attention to the need in the service of a domestic cable from the Pacific coast to the Philippines. At the present time communication between Manila and Washington is through Europe, Asia, and China. It naturally follows, that in the event of complications in any of the countries through which our cable communication from the Pacific now passes, we would find difficulty in keeping in touch with our new possessions.

General Corbin declares that the present rates charged by the existing cable service are exorbitant, $2.38 per word being the regular tariff on messages between Washington and Manila. The general believes that these excessive charges practically prohibit satisfactory service, and the cipher code of the war department has therefore required adjusment to keep down the high demands.

If the War Department were to publish the list of charges for cable messages since the termination of the Spanish War, the public would be surprised at the amount of money which has passed into the hands of the cable people. The foreign cable companies have Uncle Sam at their mercy and have no compunctions about demanding excessive rates.

Our relations with the Orient are closer to-day than ever before, and there is no doubt that we will increase our prestige in that part of the world as the years pass. We should be able to communicate direct with our Pacific possessions without relying upon a cable service which might be used to our disadvantage by countries likely to be in opposition to us in the future. With a Pacific cable and an interoceanic canal, the United States would make secure its new territory and increase its commerce with the world.

The American District Telegraph Company, of New York, M. W. Rayens, superintendent, has, under his able management, succeeded in increasing its dividend to a 2½ per cent. basis.

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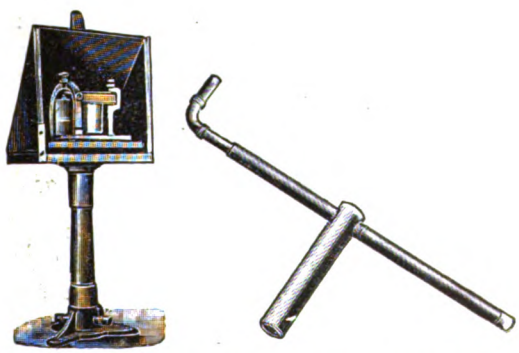
A New Resonator.

A new type of resonator has been invented and patented by Mr. J. F. Skirrow, the assistant manager and electrical expert of the Postal Telegraph-Cable Company, New York. It not only embodies the improvements previously devised by Mr. Skirrow in resonators, namely, the fiber sound deadening top, lateral adjustment of the sounder hood, internal wire connections, etc., but goes much further. The sounder hood connects with the standard by revolving electrical connections, thus



THE SKIRROW EXTENSION ARM RESONATOR, COMPLETE.

permitting it to be turned completely around laterally, or entirely removed at will. It is of new design being shaped so as to reflect the sounder signals directly outward to the operator, and is hinged so that it may be thrown back at will leaving the sounder itself uncovered. This feature renders it particularly conveninent for adjustments, and permits the sounder to be heard from any direction when desired.



THE SKIRROW RESONATOR WITH EXTENSION ARM REMOVED.

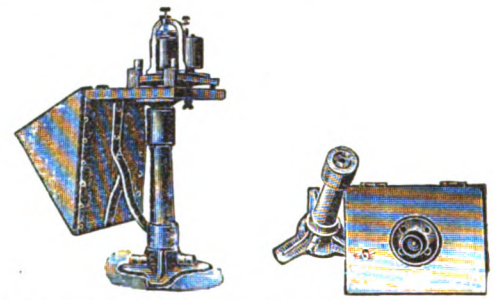
A message clip is attached to the back of the hood, so arranged that the operator places the message on top of the resonator where it is securely held in prominent view.

By removing the hood and inserting a slidable and easily adjusted extension arm in its place, upon which the hood in turn is again placed, the sounder may be brought as close to the operators ear as desired.

Since the inception of the telegraph the plan seems to have been to constantly increase the volume of noise given out by sounders. In fact a prominent claim of many telegraph instrument manufacturers is that their sounders will give a greater volume of sound than others. This application of the sounder principle is inherently wrong. Any sounder will give a far greater volume of sound than is required to read signals from.

It may be noted that this type of resonator marks a radical change in the construction of such instruments, the design in this case being to reduce sound instead of to increase it.

Instead of placing a noisy sounder at some distance from the operator the sounder should be turned low and brought very close to the operators ear. If a reflector (of itself non-resonant) is placed back of such a sounder it will reflect the sound waves directly to the operator's ear and enable him to read signals distinctly and comfortably even if he is working in a noisy place.



SHOWING THE SEPARATE PARTS OF THE SKIRROW EXTENSION ARM RESONATOR.

The condition is similar to that of two people holding a conversation in a crowd. If one should try to make the other hear him at a distance of several feet he would have to shout, but if he should draw near and speak close to the other's ear, even a whisper would be audible to the hearer. Hitherto the sounders have been worked too much on the "shouting" plan.

It has been demonstrated that with a resonator such as described a sounder may be turned so low that a person standing alongside of it is unable to hear any sound, and yet the operator may copy the incoming signals with comfort and safety.

A number of these instruments have been in use for some time in the New York main office of the Postal Telegraph-Cable Company with the result that this resonator has been adopted by that company as its standard. Its general introduction will result in a great reduction in the volume of sound in telegraph offices.

These instruments are manufactured by the Bunnell Telegraphic and Electrical Company of New York.

Buggs—"I hear it gossiped that Muggs has turned his hand to forgery."

Puggs—"No, he only turned his foot to 'raising' a 'check' who broke his typewriter!"

A subscription to TELEGRAPH AGE is one of the best investments a progressive telegrapher can make; it keeps him thoroughly posted.

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The Telephone in Railroad Service.*

BY F. P. VALENTINE.

(Continued from page 426, Oct. 16.)

In installing telephone systems, a great mistake is often made by railroad companies in endeavoring to economize in the number of instruments. Enough should be provided to care for every branch of the service under any conditions that may arise. This is especially true in relation to offices handling train service.

The branch exchange should not only afford connection with points in the immediate vicinity of the terminal, but it will be found advantageous to extend the lines to the outlying towers and stations, supplementing the telegraph service, and in many cases economizing in the number of telegraph operators it is necessary to employ, as there are many stations and towers where it is unnecessary to issue train orders, and the use of the telephone relieves the telegraph wires of miscellaneous business which often delays more important matters.

If the extension of these lines from the switchboard is carried out, so that a pair of wires is run along the main line through the more important divisions, such wires also become valuable in emergencies. If a wrecking car is equipped with a compact telephone set, as soon as the car arrives at the scene of the wreck, instant communication may be established with the dispatchers and division headquarters by means of these division lines. Several instances have occurred recently demonstrating the value of this emergency service, where a telephone was attached to a telegraph pole within a few feet of the wreck, connected with the wires running to the switchboard at division headquarters, allowing the division superintendent, who was on the ground before the wrecking car arrived, to keep in touch with the dispatcher and the towers on each side of the wreck, and, as soon as one track was clear, permitting the movement of a number of delayed passenger trains with little loss of time. In this case no telegraph was available, but it was the opinion of the superintendent that, had it been, the work could not have been accomplished with equal satisfaction or expedition.

These wires running through the division, connecting towers and stations, also become valuable to section foremen and signalmen to communicate with headquarters, if a test set is carried or telephone boxes are established at intervals. An emergency telephone set might be carried in the baggage car of a train, enabling a train disabled between stations and towers to report the trouble at once.

It is of great advantage to connect the various block signal stations by telephone as well as by telegraph, thus relieving the train wires of messages between towermen, which they are often unable to send promptly, as the wire is in use for train orders. A simple expedient is to utilize two of the wires used for the bell or locking circuits between towers. By the use of a two-way strap switch, a telephone may be thrown into the circuit on either side and the towermen may hold communication.

In some instances, block stations on entire divisions have been equipped by telephone on lines running to switchboards at division headquarters to the exclusion of telegraph and all business with and between the towers is transacted by telephone. This has a distinct advantage in the fact that special training is not necessary in the towerman, as they may be recruited from the men having actual experience in the handling of trains and not necessarily telegraph operators. It also affords a field for employees of the road who have been disabled in the service and are unable to take other positions. This results in bringing into the service men whose experiences makes them more valuable as towermen than would be the case were the choice restricted to telegraph operators.

The railroads terminating in New York and Jersey City have a problem which does not confront roads in inland cities, in having to float many of their cars from the docks of one road to the docks of another. The railroad having the largest floating equipment moves, in this manner, in the neighborhood of 2,000 cars per day. This float service is necessarily slow and, to obtain the best results, must be under a control similar to the train service. This has been accomplished by establishing a telephone dispatching system, so that the various captains of tugs and the floatmasters report and receive orders both on arrival at and departure from the terminals. The yardmasters and all concerned are notified of these movements and, knowing what cars to expect, are enabled to arrange for prompt movement upon the arrival of the floats. By the use of this telephone dispatching system an appreciable increase has been made in the number of cars handled daily and an economy in tug movements.

While it is universally admitted that the use of the telephone under the branch exchange system at terminals is essential, it is only recently that progress has been made in connecting the various terminals by long distance lines. This has opened up a new field, and the results obtained by connecting the various switchboards in different cities along the lines of the railroads are leading to serious consideration on the part of the railroad officials of extensive additions to this service. The fact that a general officer, sitting at his desk, is enabled to communicate almost instantly with his subordinates at all points on the line effects great economy in the transaction of business and excels in value the use of the telegraph or train mail. The fact that principals can deal direct with one another instead of through the medium of a telegraph operator has much to do with this. Five minutes conversation will often accomplish more, with definite results, than half a dozen letters or telegrams, without the delay involved in handling the matter by the latter means. The railroads that have established these long distance lines are finding constantly increasing use made by the various departments, from the Executive down.

*Read before the Convention of the Association of Railroad Telegraph Superintendents, at Buffalo, N. Y. June 19, 20, 21.

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While the expense of installing these lines makes it necessary to economize in their use, it is astonishing how much business may be transacted daily over one pair of wires, if the service is properly handled. From records taken, the average length of time consumed per connection on railroad business for calls between distant points appears to be about three and one-half minutes. This would permit, in nine business hours, about 150 messages. If such lines extend over a large territory, connecting several switchboards, of course, the different parts of a line may be worked simultaneously without interference. To obtain the best results a careful study should be made of the use made of the lines by the various departments and of the handling the calls. This will show that, by properly systematizing the operation, it is possible to increase the capacity of the line surprisingly.

(To be continued.)

The United States Signal Corps.

From the number of letters printed in the columns of the Railroad Telegrapher from members of the United States Signal Corps at the front in the Philippines, complaining of poor pay and worse treatment, it begins to look as if some radical reforms were needed in that department.

There is no excuse for the government of the United States being niggardly in the matter, and there is plenty of evidence that the sovereign people do not wish their representatives to make life a burden to those who are fighting their country's battles.

That the managing officials of the Signal Corps are open to the charge of incompetence, is very clear to every practical man who has given the subject any consideration. The following items clipped from the columns of the most influential daily in Manila, The New American, of August 24, 1901, is almost conclusive evidence on that point. It says:

"Owing to the difficulty in enlisting competent men for the Signal Corps the commanding-general of the division has decided that men from other organizations will be instructed in telegraphy and transferred to the Signal Corps as fast as vacancies may occur. Each telegraph operator will be made an instructor, and there will be a pupil at every post, selected from the enlisted men on duty at that post."

The division general order providing for such instructions is under date of August 17, and reads as follows:

"The commanding officer of every troop and company outside of Manila, at points where there is a telegraph office of the Signal Corps, will detail an intelligent enlisted man to be instructed by the operator of the station in telegraphy. The commanding officer at each station will give his personal attention to this matter and decide what hour of the day will be best for the instruction of the men with the least interruption of public business and other duties, and will see that attendance is prompt and regular. The men to be allowed to practice as much as possible. The names of efficient men will be reported, through these headquarters, to the chief Signal officer of the division for enrollment, with a view to detail as operators when vacancies may in future occur.

It is a well-known fact that there would be no difficulty in enlisting experienced telegraphers, if anything like adequate salaries were paid. If the salaries ranged from $75 to $100 per month, instead of from $13.50 to $55 per month, they could get all the men they need.

It is also a well-known fact that adults cannot learn telegraphy, as the necessary skill must be acquired at a more receptive stage of development. As the saying is, "You cannot teach an old dog new tricks."

A writer in the September Railroad Telegrapher, who is a member of the Signal Corps located near Manila, P. I., says:

"Since the increase of the army there have been over 300 reductions made in our branch of the service. First-class sergeants reduced to corporals, making a difference of $25 a month. A first-class sergeant's pay is $55 a month; a corporal's is $24. The sergeants were reduced to the grade of first-class private, and the first-class privates to 'soldiers,' second-class privates, but the second-class handles his day's business just as if he was drawing $75 per month. Principally all the second-class privates are operators, not 'Fort Myer graduates,' but men of ten to fifteen years' experience."

Of course, the expert telegraphers are leaving the service at the first opportunity, for they can get better treatment at the hands of a private employer.

Those who cannot get away, should join the Order and have their grievances taken up and adjusted through the regular Congressional Committee.

To have the attention of the proper persons called to the abuses that have crept into the Signal service, would result in having the matter remedied in a very short time.—The Railroad Telegrapher.

"Electricity Made Simple" is the title of a 233 page book; paper binding, 50 cents; cloth binding, $1. The author, Mr. Clark C. Haskins, of Chicago, is an old-time telegrapher, but has been engaged as an electrical expert for the past twenty-five years in the various branches of electricity.

This little work is not intended for the instruction of experts, nor as a guide for professors. The endeavor has been throughout the book to bring the matter down to the level of those whose opportunities for gaining information on the branches treated have been limited.

Those desiring copies of this useful work may obtain the same by remitting price to J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Operators interested in the method of treatment of writers' cramp will find very complete information in the little booklet entitled "The Cure of Telegraphers' Paralysis," published by TELEGRAPH AGE, New York. Price 50 cents.

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Annual Proceedings.

The printed proceedings of the fourteenth annual convention of the Train Dispatchers' Association of America, held at San Francisco, Cal., June 11, 12 and 13 last, making a book of 185 pages, with a folder appendix showing a non-scheduled system for handling trains, is received. The pages contain matter of great interest to the train dispatchers, and reflect the excellent work now being accomplished in the proper handling of trains by this useful association. Several half-tone engravings of the officers of the association are shown, including one of J. F. Mackie, secretary, treasurer and editor, who in our opinion has done more than his share of the work in placing the association on the high plane it occupies to-day.

The proceedings of the Association of Railway Telegraph Superintendents, whose annual meeting was held at Buffalo, N. Y., on June 19, 20 and 21, is now being distributed by Mr. P. W. Drew, of Milwaukee, Wis., the secretary. The 142 pages of interesting papers read at the meeting, together with the discussion which followed their presentation, makes up a book of valuable and timely information, which all railway telegraph superintendents should possess. This association continues to maintain its high record as a deliberative body through the annual exchange of opinions and experiences of its members, which results in sifting out and making known the best methods employed on all roads in handling the various departments comprised within the limits of a superintendency.

Telegraph in Alaska.

The annual report of Brig. Gen. George M. Randall, commanding the Department of Alaska, was recently made public by the War Department. The report is dated at Fort St. Michael, and General Randall says: "In connection with the telegraph line it is proper to remark that in the original plan for its construction it was proposed that a large section of the line should be for the present a land cable, to be replaced gradually by a permanent line, regularly constructed, should the conditions justify; also that St. Michael's would be connected by cable with Unalaklik, the point of departure from the coast to the Yukon. The total length of the line constructed up to date aggregates approximately 400 miles. The work is being pushed along the Yukon River above Nulato and by the close of navigation in September it is hoped there will be telegraphic communication between this point and Fort Gibbon, a distance by the line of about 420 miles. There are many difficulties to be overcome in such construction, and which are peculiar to the Arctic climate. Along the coast of Norton Sound and a portion of the Portage from Unalaklik to Kaltag is a 'tundra' (a frozen marshy plain) country, merging into spruce forests, with dense undergrowth as the Yukon is approached. This latter condition extends generally throughout the Yukon Valley. The cable from St. Michael to Nome, which was laid by the Alaska Commercial Company, salvors of the cable ship Orizaba, and operated for a time last fall, was carried away by the ice in November last and has not been recovered up to the present time."

Simultaneous Multiplex and Ordinary Telegraphy.

The simultaneous transmission of telegraphic and telephonic messages over the same wire is rendered possible by the difference in the effects produced by continuous and oscillating currents respectively. It follows that any system of telegraphy which employs oscillating currents offers the possibility of a simultaneous transmission of continuous and oscillatory messages. Such a system is that of E. Mercadier, who operates with electric tuning-forks. He has tested the possibility above indicated in a practical manner and on a large scale, and has succeeded in completely establishing it. The line worked with was that between Paris and Bordeaux. Among the various forms of auxiliary apparatus devised by Van Rysselberghe, Maiche, Cailho, Picard, etc., that of Cailho was chosen, and twelve simultaneous messages were transmitted by Mercadier's system, together with signals, with the Morse, Hughes, or Baudot transmitter. Since messages can be sent in both directions, this means that one wire can carry twenty-five messages at a time, together with extra messages between intermediate stations. This means a conveying capacity of some 1,300 telegrams of twenty words per hour, and a page of The London Times could be transmitted from London to Dublin in half an hour.—Comptes Rendus.

Martha's Vineyard Telegraph Company.

At the annual meeting of the Martha's Vineyard Telegraph Company, held October 7, the following directors were elected for the ensuing year: E. B. Pillsbury, Superintendent Postal Telegraph-Cable Company, Boston, Mass.; Thomas Roche, Superintendent Western Union Telegraph Company, Boston, Mass.; H. G. Haddon of Postal Telegraph-Cable Company, Boston. The latter was also appointed president and general manager, vice Geo. C. Maynard of Washington, D. C., resigned owing to heavy damages upon his time at the Smithsonian Institute. Mr. Haddon's headquarters will be at Woods Hole, where he will reside in future.

Western Union Officers Elected

The directors of the Western Union Telegraph Company met at 195 Broadway, New York, October 16, and re-elected the officers of the company as follows: Thomas T. Eckert, president and general manager; R. C. Clowry, George J. Gould, J. B. Van Every and Thomas F. Clark, vice-presidents; A. R. Brewer, secretary; M. T. Wilbur, treasurer; J. B. Van Every, auditor; G. H. Fearons, general attorney.

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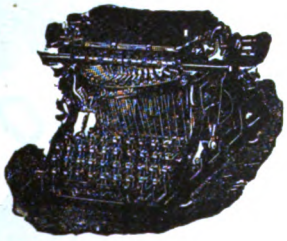
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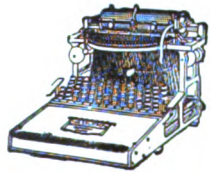


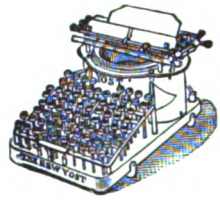
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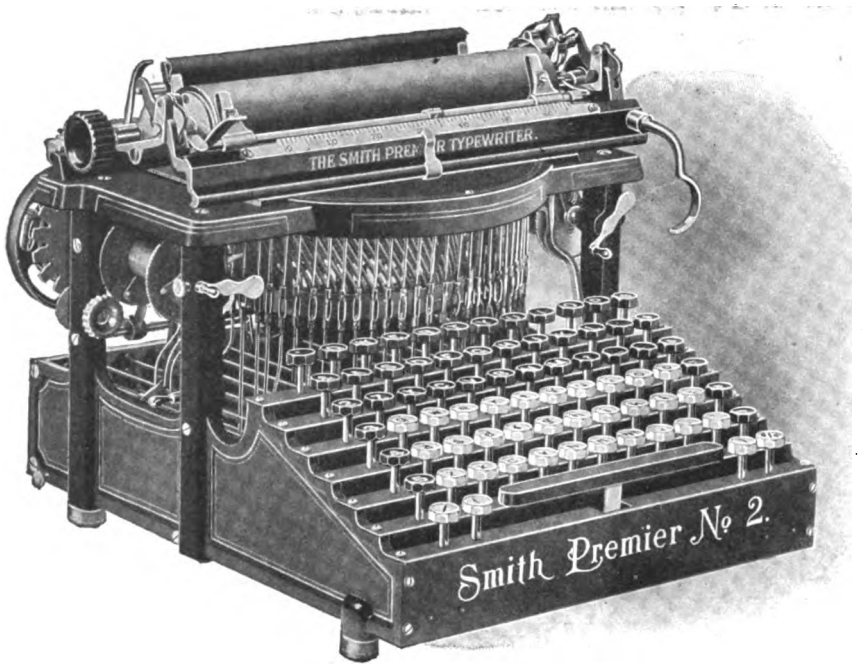
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NEW YORK, November 1, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

Telegraph Enactment of 1866.

The Act of July, 1866, referred to by Attorney-General Knox in his opinion regarding the right of the Commercial Cable Company to lay a cable across the Pacific, was passed for the purpose of facilitating, in case of necessity, the acquisition by the Government of telegraph lines constructed by private companies. As effecting the case in question, its phraseology is as follows: "Any telegraph company now organized, or which may hereafter be organized, under the laws of any State, shall have the right to construct, maintain and operate lines of telegraph . . . over, under or across the navigable streams of waters of the United States; but such lines of telegraph shall be so constructed as not to obstruct the navigation of such streams and waters." In return for the concessions thus made the United States reserves the right to purchase all the telegraph lines, property and effects of any or all companies acting under the provisions of this Act, at an appraised value, to be ascertained by five competent, disinterested persons, two of whom shall be selected by the Postmaster-General of the United States, two by the company interested, and one by the four so previously selected. The only formula required of a telegraph company before proceeding with the work of construction is to file with the Postmaster-General their written acceptance of the restrictions and obligations thus set forth.

All telegraph and cable companies organized under United States laws have filed with the Postmaster-General such written acceptance.

Coherers Not Necessary for Space Telegraphy.

It has been shown by E. Ruhmen, in Physikalische Zeitschrift, August 24, 1901, that no coherers are absolutely necessary for space telegraphy, an ordinary telephone answering the purpose well enough for considerable distances. He used a Righi oscillator, with induction coil and turbine interrupter. One ball of the oscillator was earthed, while the other was attached to a mast wire twenty-five meters long. The receiver consisted of a mast wire five meters long, earthed through an ordinary telephone. The distance was two kilometers. Morse signals were easily read. It was found that the telephone answered only to the first of the damped oscillations proceeding from the oscillator. It is, therefore, desirable to increase the capacity of the oscillator as far as possible. It was found advantageous to insert a condenser in parallel with the oscillator. As regards the receiver, it was found best to put a condenser in the receiving circuit, and read off the signals by means of a transformer. Such was the loudness obtained that it seems quite feasible to convey signals in this manner over twenty miles or so. This would mean a great simplification and extension of space telegraphy.

Wireless Telegraphy.

A demonstration what purported to be a new system of wireless telegraphy, of which Ariel Orling, a young Swede is the inventor, was given in London, England, a few days ago. The public was made to understand that a marked advance upon past achievements was thus indicated. But scrutiny of the published accounts does not establish confidence in that opinion. The control of a torpedo boat's movements without wires is a rather

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sensational feat, but not at all new. Nor is there any great novelty in telephoning from one ship to another by connecting the apparatus on each vessel with the sea. The most notable difference which is alleged to exist between Marconi's and Orling's apparatus is that the latter does not require a tall mast, but employs the earth as a conductor.

Reporting the Yacht Races by Wireless Telegraphy.

A practical test of the wireless system of telegraphy was made in reporting the yacht races off Sandy Hook lately, and viewing the results from a commercial standpoint, the system was found wanting in one vital point, according to the Electrical World and Engineer. It was shown that the problem of securing immunity from interference remains to be solved, at least so far as the systems under test are concerned. When there were no disturbing influences present the several systems appear to have worked satisfactorily, but owing to their interference the net result was far from satisfactory.

The Associated Press chartered the steam yacht "Mindora," and had her fitted out with a complete equipment of Marconi apparatus. The "Mindora" followed the yachts around the course each day and reporters aboard sent frequent bulletins to headquarters, announcing the details of the race. The wireless messages from the "Mindora" were received at a station located in the hotel at Long Beach, L. I., and from there transmitted to the New York office by telegraph. The Marconi Wireless Telegraph Company sent the entire equipment and staff of operators to this country from England expressly to report these races.

The "Mindora's" topmast was removable, and in its place was spliced a longer spar for the purpose of supporting the antenna or aerial wire. The total height of the mast from the deck was about 106 feet. The wire was not run down the mast, as is usual, but hung from the mast-head and drawn taut so as to form one side of a triangle whose opposite side was the raking mast, the base being the horizontal distance between the mast and wire. It was insulated throughout its entire length, except at the lower end, where it was connected with a cable leading down through a skylight to the instruments in the cabin. Judging from the character of the joint it is evident that resistance loses much of its terror in a system of this nature. It was what is ordinarily called a bell-hanger's joint, being a loose turn of the ends of the wires around each other. The cable leading to the instruments had a stranded conductor and was protected by a water-proof flexible covering.

The instruments were placed on a temporary wooden bench at the foot of the companion way, and included two large spark coils (only one of which was used), a battery of Leyden jars, a condenser and inductance in one large box, an ink recording instrument, and a box containing a Siemens relay and the coherer, besides a bank of incandescent lamps used to reduce the voltage in charging the storage battery from the yacht's dynamo. The entire equipment was English except the lamps, and the enamel rheostat. The continental code was used in sending dispatches, and the operation of the system, when free from interference, seemed to be very satisfactory. The signals received from the land station were recorded very clearly on the tape, and messages were exchanged with great freedom.

More or less annoyance and trouble were experienced, however, through the interference of another system of wireless telegraph; in fact, there were three systems in use. The second was that known as the de Forest system, and was used by the Publishers' Press Association. In order that both systems might be used without interfering with each other, it was agreed that the time be divided between the two, The Associated Press taking five minutes and the Publishers' Press the next five minutes, and so on, alternately. This plan worked all right for a time until the third system appeared on the scene. The third party was very unwelcome, and seems to have had no other purpose in view than to upset the carefully arranged plans of the two press associations. The result was that while the third man was sending out his waves the other two systems were hors de combat.

The transmission speed of the Marconi system was about twelve words per minute, and the greatest distance from the land station to the "Mindora" was about twenty nautical miles, as measured on the chart.

On the tug "Edna V. Crew," which carried the Publishers' Press outfit, the aerial wire was a distinctive feature. It was a ladder-like structure, four vertical wires being held parallel to one another by cross pieces, and suspended from the mast head. It is claimed that the de Forest system sends out very powerful waves, but its real value in this respect was not demonstrated, owing to the breaking down of the insulation of an important piece of apparatus. In this system a motor of special design is used in place of the induction coil, and it was the motor that failed. An induction coil was substituted for it, and with this foreign element in its make-up the system was used throughout the races. The Publishers' Press had land stations at Sandy Hook and Seabright. It is stated that signals were transmitted over an extreme distance of 22 miles before the failure of the apparatus.

The operation of the Marconi and de Forest systems was witnessed by Lieutenant A. M. Beecher, of the United States Navy, who was detailed for the purpose by Admiral Bradford.

The Marconi interests were in charge of Mr. W. W. Bradfield, from the company's headquarters, the operator on the "Mindora," also from London, being Mr. A. Gray.

The system operated for the Publishers' Press was that of the American Wireless Telegraph Company, the inventor, Mr. de Forest, hailing from Chicago, where most of his experimental work was carried on.

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"Why Not Ethergraphy?"

BY JAMES B. DILLON, OF LOUISVILLE, KY.

Commenting upon my letter which appears on page 414, October 1 issue of TELEGRAPH AGE, wherein I suggested that "Ethergraphy" would be a logical term for Marconi's so-called "Wireless Telegraphy," the New York Times, of October 3, proceeds as follows:

"There are several serious objections to the same. In the first place, the two parts of the word are clumsily put together, the lack of an intermediate vowel rendering it unpleasant to hear and difficult to speak, and, in the second place, the old theories in regard to 'ether' are just now in a rather topply condition, and, however it may be with electricians, scientists are getting discontented with the assumptions that have served them so long and well as a working hypothesis, and would not be either surprised or troubled if the necessity for making a new set of assumptions about atoms and molecules, as well as ether, should soon be manifest. Then what would become of 'Ethergraphy?'"

Summing up the objections urged by the Times writer, and in view of the present existing circumstances, the most reasonable objection, as I see it, that he offers, is the clumsiness of the construction of the word "Ethergraphy." While I reluctantly admit so much, I must demur whereat the objector says: "It is difficult to speak"; unless it is also admitted that there are many partly similar words in the language that are just, or even more, difficult to utter. For instance, "Chirography," "Ethnography," "Photography," and so on. As for the absence of the intermediate vowel, I do not see that that should act as an impediment to the use of the word I suggested, because in the pronunciation of words such as I mention above, and similar ones, the intermediate vowel is often shifted so that it would be hard to determine, without dissection, where the "split" is.

Great stress is laid upon the idea that scientists are discontented with the ether, atom and molecule theories, and that the whole thing may be proven farcical, and Ethergraphy would then be a misnomer. Be this as it may; geologists, astronomers, mathematicians and anthropologists have for many ages been at variance as to the age of the earth; the antiquity of man; the evolution theory, and kindred subjects, yet has there been any agreement? On the contrary, their solutions as to the age of the earth, and the antiquity of man do not agree by thousands of years. As for the evolution theory, it is in the category of other "Scottish Verdicts"—not proven.

I do not know what substitution will be offered for the molecular theory, but just now I think the molecular theory would come in handy if the small boy should ask what becomes of the wood that was formerly in the board where the driven nail now resides.

Therefore, if ages have failed to solve the problems I have alluded to, what right have we to hope that the ether theory will be exploded. I think its solution will be equally as hard as the others cited. Now, the Times writer asked for a logical word for Marconi's "Wireless Telegraphy" and I still feel that "Ethergraphy" is the word. However, I do not contend that it is the only logical term by which Marconi's invention could be called, but I do contend that it is suggestive, appropriate and to the point, present theories taken into consideraton. If it can be proven illogical now according to scientific investigation, or knowledge, away with it to the dark recesses of oblivion, but, if not, let it shine forth (unless a better term is suggested), as I fully expect Marconi's invention to do, and fear not that scientists will upset the ether theory very soon, if ever.

A Telegraph Operator's Thrilling "Pipe" Story.

While waiting for a train at a small station on the Canadian Pacific Railway a short time ago, I spent the time in the telegraph office. On the operator's table lay a small dog of the black-and-tan species, which occasionally raised his head and cocked an ear towards the clicking sounder, as though listening to the words being spelled out.

"Acts as though he could read Morse," I said to the operator.

"Yes, he acts that way," replied my companion, "and his actions are not misleading. That dog—I call him Dash—can read the Morse alphabet as well as any operator on this string; furthermore, he can place his paw on the key and transmit a dispatch in better shape than any telegraph college graduate that ever flashed a diploma. It took me several years to teach him telegraphy, but it was time well spent. Dash has made good use of his education, too. That dog is a hero. His name once appeared on the pay rolls of a great railroad corporation; but I will tell you the story.

"In the summer of 1894 I was agent for the Northern Pacific Railroad at a small station in Western Montana. With the warm weather came high water, and traffic was at a standstill for nearly two weeks. Damages had just been repaired and trains were running smoothly. Freight and express, long delayed, was being hurried to its destination. Express safes were filled with treasure, and some of the knights of the road decided that it would be a good time to make a rich haul. Bonita, a lonely little flag station, situated among the western foothills of the Rocky Mountains, was the place selected by the robbers to carry out their nefarious plans.

"I was sitting in my office one evening about 10 o'clock, one of my duties being to remain and report No. 2, which passed there about 11:30 p.m. The outer door opened, and I turned around to face the forbidding-looking muzzle of a 44 Colt's and a pair of determined eyes gazing at me through holes cut in a cloth mask. I never had much of a reputation for personal bravery, and when the command came to throw up my hands I obeyed with alacrity. Several other masked men then entered the office, and I was commanded to light and hang out my signal lamp. When this was done I was bound and gagged and thrown

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into a storeroom adjoining the office, one of the robbers facetiously advising me to keep perfectly quiet. In my helpless condition time passed slowly enough, I assure you.

"The desperadoes went outside to prepare for their work. Suddenly my attention was attracted by the sounder in the office without, which told me that some one was calling the superintendent's office at Missoula and signing my office call. At first I thought that one of the bandits was an operator, and was trying to ascertain whether or not the train was on time, but when the call was answered, and I listened to the following message, I knew that I was the owner of a dog that was worth its weight in—diamonds:

"'Bonita, June 16.

"'W. H. B., Missoula—Robbers here going to hold up No. 2. They have bound and gagged Williams and locked him in the freight room.

'Dash.'

"At Missoula, the division headquarters, there was suppressed excitement, and orders were being issued and carried out promptly. A posse was formed and a special fitted out for my relief.

"It seemed to me that I had lain in the storeroom many hours when I heard the whistle of an approaching train, which soon came to a standstill. Then a few scattering shots were fired, followed by volleys, mingled with the sounds of curses and groans. Then I heard steps on the platform, the storeroom door was opened, and in an instant I was free and looking into the familiar faces of friends. Three of the deseradoes were stretched upon the platform, and would never hold up another train; four others were wounded and in irons. Two of the posse were slightly injured.

"When the excitement had, in a measure, subsided, Superintendent Brimson said: 'who is Dash, and how does it happen that the telegram warning us was sent from here?'

"'There is the sender of that telegram,' I said, proudly pointing to Dash.

"The men who were present looked at me in a pitying way, as if they though my late experience had made me delirious. 'I can prove my assertion, gentlemen,' I said: 'Sheriff Ramsey is an expert telegrapher, and will sustain me.'

"I lifted the dog to the table, and, opening the key, I spelled out the words: 'Dash, did you warn W. H. B. about the robbers?'

"The dog gazed around with a seeming look of triumph in his eyes, then placed his paw on the key and ticked off the following: 'Of course; does anyone doubt it?'

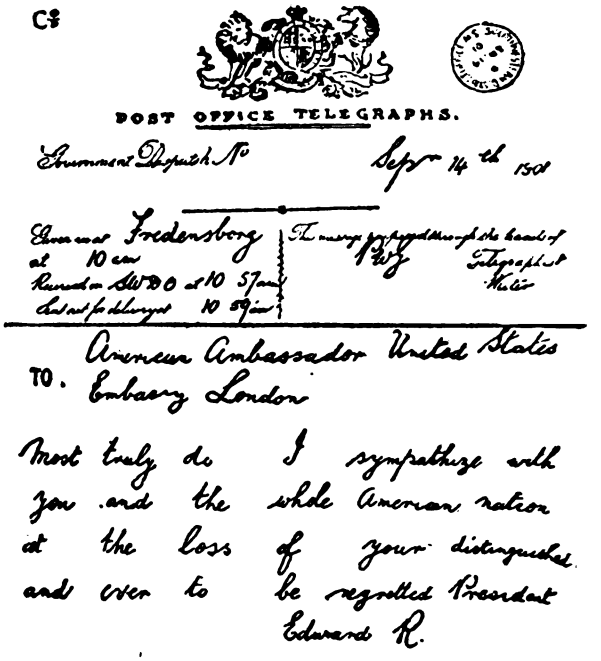
"The big Sheriff was listening, apparently thunderstruck, but he finally managed to gasp: 'Well, I'm d—d, if that dog isn't a dandy!' And then a shout went up that threatened to wreck the little office building.

"Here is your train. Sorry you can't stay a little longer. I had intended to have Dash send a telegram in your presence for the purpose of convincing you that he is all I represent him to be."

I too was sorry that I was not able to remain. I have since been wondering whether the dog was an expert telegrapher or his owner was a past master in the practice said to have been made famous by Ananias.—Burton James in the Railroad Telegrapher.

A Telegram from King Edward VII.

In these democratic days, kings send telegrams over their own name, just like anybody else, handing them in to an operator, waiting till the words are counted and paying the cost, unless they happen to be sent "Collect."



FAC-SIMILE OF KING EDWARD'S TELEGRAM.

Here is a reproduced fac-simile of the telegram sent by Edward VII from Fredensborg, Germany, to our embassy at London upon the occasion of the death of President McKinley. A curious phrasing is employed in the address. "American Ambassador, United States Embassy." Why not "United States Ambassador, United States Embassy," or "American Ambassador, American Embassy?" Purists maintain that there is no such person as "American Ambassador," or such a place as the "American Embassy," but custom, which is all powerful in London, has adopted the simpler rather than the official designations.

"The Crisis," the most popular book of recent years, being read everywhere, the demand for it frequently exceeding the supply, not only presents a magnificently written story of absorbing interest, but at the same time, and delightfully interwoven with it, gives one of the most truthful, because unprejudiced, dramatic and fascinating histories of the Civil War yet produced.

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Scoops Picked Off the Wire.

"While Denver has far exceeded in her wonderful growth and beauty the expectations and prophecies of probably all old-timers, I still find after my twenty years' absence many old landmarks, more especially among its people," said Ed Cowen a few days since. "Some have grown from boyhood to manhood, others from middle age to old men. Still the happy smile greets me as of yore. Time does not appear to change the average Coloradoan and some it has changed but little in looks. Take my friend George E. Lawton, night manager of the Western Union Telegraph Company here, or, more properly speaking, 'Old Farmer Lawton,' a title we gave him more than a quarter of a century ago. He does not look a day older than he did when I first met him in Pueblo in 1876, and I presume he has just as good an eye to business or he would not be retained so long. By his honesty and genial ways he has made many friends for himself and his company, especially among the newspaper fraternity.

"Years ago, when a dozen or more of us representing Eastern papers rushed to the telegraph office with our 'scoops' the contents of those specials were held as sacred by the 'Old Farmer' as though his life depended on them not leaking out, but next day he would josh the fellow that happened to fall down on a piece of news and comfort him by telling him that the next turn would probably be his.

"The 'Old Farmer' always had a great way of getting around either little or big difficulties. I remember in 1879 when Lawton was helping The Associated Press out as agent in Denver in connection with his other duties, that a severe blizzard passed over Kansas and Nebraska, cutting off not only telegraphic but mail communication for several days. The company was not then supplied with many different routes. The first night we got through tolerably well by spreading on local matter and clipping a little from Eastern exchanges, but the second night we could not even hear of a dog fight to work up locally and with no mails there was no use for the scissors, and we had to look to the 'Old Farmer' for relief. George was always pretty handy with the 'quill,' and after calling up the different offices in the State where the wires had not been affected by the storm, he sat down and began to write State specials for us, grinding out copy faster than either of the two morning papers could set by hand, and winding up with a column of a fresh Indian outbreak in which Little Piah and his band of renegade Utes had run off several hundred head of Wilson brothers' horses in the neighborhood of Kit Carson after a battle with the herders in charge.

"Of course, we were all very grateful to the 'Old Farmer' for saving our lives and jobs in assisting us in the getting out of the newsiest papers ever published west of the Missouri, but we didn't see the point gained by the 'Farmer' in his accommodation. Up to this time, Denver was Colorado. There was no dog with a tail to wag, hence the outside towns were not counted, and to have published anything about one of them or that which happened in or near them would have been looked upon as bad journalism, besides it was quite expensive. In fact, we had always refused to pay tolls on specials previous to this, and returned them to the telegraph office regardless of their importance when an outsider occasionally became extravagant enough to place one on the wires. But after Lawton spread himself that night we had to follow up the State service, as the people seemed to demand it, and just think of the thousands of dollars it has brought the company in tolls since then! Of course, George is too modest to take credit for all this, but it was certainly that great big head of his that led us into the trap.

"Another instance of the 'Old Farmer's' eye to business is best illustrated in his first meeting with Bill Nye in 1878, I think it was. Bill had been East and skipped over to Denver to spend a few days with Fred Skiff. Going to the telegraph office Fred introduced Bill to the 'Old Farmer' and while swapping a few stories Bill utilized the time in writing out a short message to his wife, notifying her that he would be detained in Denver a few days and also quite a lengthy letter to his business manager. Lawton, in his usual accommodating spirit, accepted the message, and also told Bill he would have one of the messenger boys post the letter for him and save him the trouble of hunting up the post office. Bill always claimed that 'Old Farmer' mailed his message and put the letter on the wire, causing his wife to mortgage the Boomerang plant in order to pay tolls on the same.

"In those days Lawton's only bad habit was smoking poor five-cent cigars. Rothacker used to take advantage of this occasionally, when passing, by dropping in and giving the 'Farmer' a very fine 25-cent Havana, just to watch him make all kinds of faces while trying to smoke a good cigar.

"Probably no man in America had greater admiration for Gen. Henry W. Lawton than 'Old Farmer' Lawton, and I do not believe there are many who know even now how close they were related by blood, as George is not one who goes back to his ancestral family tree to dig up relationship with prominent people, but in the case of the general the 'Farmer' cannot get around being about a third cousin to the great fighter.

"I well remember their first meeting. I had met General Lawton while in New Mexico where he was captain of a troop chasing redskins, and noticed his close resemblance to the 'Old Farmer,' not only in looks and stature, but also in speech. Later, when the captain was passing through Denver I met and introduced him to the 'Old Farmer.' It required but a few minutes for them to figure out their relationship, which was done in about the following language, as near as I now remember. The 'Farmer' said: 'Captain, you seem to retain a good deal of the Lawton blood in the size of your feet. You must wear about my size, a No. 11 shoe.'

"The captain said 'yes,' that he managed to squeeze on No. 10s on dress parade, but on long marches found No. 11s much more comfortable.

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Then the 'Old Farmer' told us that his great-grandfather in Massachusetts, mentioning his name, wore No. 14s, but that his grandfather cut it down to 13s, and that a good sized cow hide made a pair of No. 12 boots, which was his own father's size. 'So you see,' said the telegrapher, 'we have succeeded in reducing our feet just one size each generation.' Then the captain smiled and said, 'We have done most that well, too, for your great-grandfather was also my great-grandfather.'

"Gene Field always had a warm spot in his kind heart for Lawton, but it used to worry him greatly while in Denver to think he could not play one of his jokes on the 'Old Farmer.' Gene would have caught him on a seatless chair, but George's frame was too large to go through and he stuck before hitting the floor. Finally the time did come. One night in 1886 the 'Farmer' happened to be in Chicago and came up to the old Record office to call on us just as Gene and I were finishing up our night's work. Gene had a good stomach then and was hungry, and he proposed we banquet our old friend. After they had eaten what six ordinary men would have considered a good square meal, Gene asked Lawton if he had ever eaten any shrimps. The 'Farmer' said he guessed not, as he had never seen any. Gene immediately ordered a plate for him and commenced to tell how they were caught in Lake Michigan, when in reality they came from San Francisco and cost 75 cents a plate laid down in Chicago. Lawton remarked that they very much resembled young lobsters very much in looks and taste, and he grounded down four plates of them, shells, legs, whiskers and all. As usual, Gene never cracked a smile and was going to order the fifth plate when Lawton said: 'Not for me, Gene. It's about my bed-time and, you know, it's bad policy to eat too much just before retiring.' Gene and I often laughed about it afterward and wondered if the 'Old Farmer' walked all the way back to Denver to settle that meal that cost us $8."

Submarine Cables and Gutta-Percha.

Botanists in France are now engaged upon the problem of acclimatizing the Isonandra gutta, the tree which produces gutta-percha. It seems that no other product, says the Electrical World and Engineer, known at present replaces the gutta-percha found in the forests of the Malay Peninsula and in certain districts in Malacca. Inferior qualities have not the requisite durability for submarine cables. The plantations in the above-mentioned districts have been so ruinously exploited by the natives that it is feared there will be a shortage in the course of fifteen years, unless means are taken to protect the forests or to propagate the plants elsewhere.

The following figures will give some idea of the rapid increase in the export of the gum: In 1845, Europe imported only 19,841 pounds of gutta-percha; in 1857, when the Singapore supply was exhausted, the Malay Archipelago exported more than 529,104 pounds; in 1870, Sumatran exportations exceeded 209,621 pounds, and Borneo exported 2,863,900 pounds. In order to attain these figures, it is estimated that the natives must have sacrificed more than 5,000,000 trees.

Expeditions sent out by France, England, and Holland to discover the botanical origin of the precious gum, and to increase its production, have reached the same conclusion. As it is almost impossible to find a full-grown gutta-percha-producing tree, the situation will be extremely grave if urgent measures are not taken. The British Government has posted placards for the protection of the trees, with no effect. Holland has planted trees, but in insufficient number and of inferior species. Productive species have, however, been found in the Malay forests extending between the rivers of Pahang, Patani and Perat. They have been transplanted into Reunion and Madagascar, and if they thrive there will be less danger of a dearth in the supply of gum required for submarine cables.

An Ambiguous Telegram.

A good story illustrates the danger that lies in ambiguously worded telegraph dispatches. The wife of a New York lawyer of large means and adequate knowledge of the value of the dollar had gone to an auction sale of laces, of which she is inordinately fond, and had seen some pieces which took her fancy. The price was $2,000, and she hesitated to make the purchase without asking her husband whether she should do so. She did so, and received this reply: "No price too high."

Madam promptly bought the laces, and so struck was she by the generosity, not to say gallantry, of her husband that she added to her store $8,000 worth beside. When her husband returned that evening, she learned that the dispatch he had sent read this way: "No. Price too high."

Cape to Cairo Telegraph.

The building of the Cape-to-Cairo telegraph line has offered plenty of opportunity for the inventive mind. Difficulties of transport have perhaps never before been so keenly experienced, and have forced the engineers to fall back on many devices of their own in the absence of regulation material.

Live trees now take the place of telegraph posts, and, according to a Cairo correspondent, they offer more than one advantage over the dead-wood uprights. In particular, they afford protection against the swarms of white ants which infest the country. From time to time the branches are kept lopped sufficiently to preserve the wires from being too much enveloped in foliage. Cords of tarred hemp are used as insulators.

Automatic cable translation from section to section of cable has recently been established and is working successfully at Gibraltar on the cables of the Eastern Telegraph Company. The apparatus employed has been constructed under the patents of Mr. Herbert Taylor, Mr. S. G. Brown and Mr. Arthur Dearlove, all of England.

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Government Ownership of the Telegraph.

BY R. HITCHCOCK.

The article entitled "The Government and the Telegraph," which appears in TELEGRAPH AGE of October 16, presents a strong ex parte argument against Government ownership of the telegraph, although the writer alludes to the probability that the Industrial Commission will recommend legislation in favor of it. If the affirmations and deductions of the article are sustained, it is difficult to see what foundation the Industrial Commission can have for such a recommendation. An examination of the evidence, however, shows very clearly, that while there are two sides to this as well as to most questions, the arguments presented in the article are far from conclusive, while the facts and figures are either not fully stated or have been wrongly construed.

The subject is not new, and the arguments referred to have been repeatedly controverted by persons who have investigated the subject. Nevertheless, if they are repeated often enough some people will come to believe them sound.

The question of Government ownership and control of the telegraph is of greater commercial importance than is commonly recognized, but it is of even greater moment to the people at large, by whom the best and cheapest means of communication should be available. There should be no private monopoly of electric communication, nor should it be a means of private gain regardless of public interests. Somebody has said that there are three reasons why the Post Office could not establish a parcels post—the three Express Companies. Likewise it has been discovered, in the course of congressional inquiries, that the only strong opposition to Government control of the telegraph comes from the companies.

The object of Government ownership is to get relief from conditions which are restrictive and burdensome. No doubt a private corporation might, if managed on conservative business principles, afford as good, and almost as cheap, service as the Government. But the experience of the world has shown that in the control of a monopoly it never does. The public would be willing to favor private telegraph control which would render effective and prompt service, pay its employees well and utilize the best methods and means of operation. There would be no objection to rates which would yield a fair return on the capital of such a corporation directly invested in plant and actively employed. On the other hand, there is a decided and eminently proper objection to high tariffs for slow and unsatisfactory service, exacted for the payment of dividends on large issues of stocks and bonds. The public also protests against underpayment of employees upon whom the efficiency of the service depends and the continued use of antiquated methods which tend to perpetuate the evils complained of.

We are told that the charges for telegrams in this country compare favorably with those abroad. The fact is, the charges in this country are considerably higher, both per word and per mile of transmission. The fact is not mentioned, although it would seem to have a bearing, that whenever it is found that the charge is greater abroad, the reason is that the message crosses an international boundary, and therefore has to pay charges of two or more telegraph administrations. Professor Bemis has stated, that in Europe "a special tax is imposed on messages that cross a national frontier." But with the lower charges they have also quicker service. In England, for example, the average time for the delivery of a message is half an hour. In the United States it is about two hours or more, even for the distances of a few miles.

The statements concerning miles of wire, number of offices and extent of service in the United States as against great Britain should be taken with some allowances. Instead of miles of wire it would have been more to the point to compare miles of line. But such comparisons are not very significant, owing to the widely different conditions in regard to extent of territory and the distribution of population. The telegraph business of the United States should be, in proportion to population, enormously greater than in England, but for some reason it is not. The reason is not far to seek.

Regarding the number of offices, it should be remembered that in this country the railway companies probably maintain about one-third of them.

In all arguments against Government ownership the greatest stress is laid upon the experience of the British Post Office Department since the telegraph was taken from private hands. We are told, as a fearful warning of dire consequences to follow a similar move on our part, that "the total loss of the Government on its telegraph business since its assumption in 1870 has been $40,000,000!" Ergo, if the United States takes over the telegraph it would have to meet an annual deficit of unknown magnitude! Well, it must a very expensive business, this managing of a telegraph. But how does it happen, then, that the Western Union Company is able to declare annual profits of from $6,000,000 to $7,000,000? What would become of these profits under Government management, unless they were applied to reduction in rates? And how about other economies which would naturally result from Government control, as in England? How about the use of improved methods and the better service?

The reports of the British Post Office Department show a considerable annual deficit. There is a heavy annual interest charge of nearly $1,500,000, due to the purchase price which was about four times what the properties were worth. Nevertheless, the Department has been extending lines and increasing its facilities, opening additional offices, increasing the pay of operators and reducing the hours of labor, while rates have been reduced to one-third or one-half of what they were under private control.

The newspapers took advantage of the opportunity to gain recognition for their aid in effecting the change to Government ownership. They have

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a contract rate of one shilling for the first hundred words, but this dwindles down to four cents per hundred words on long dispatches. This is a source of loss. All Government and railway business is done free, so that there is abundant reason for the deficit. There is a peculiar method of accounting in the Department, whereby the telegraph is burdened with charges which do not properly belong to it.

There is, however, a profit on operation, and the cost of new purchases and new construction is paid out of the earnings. It is universally conceded that the service is more reliable and quicker than under private management. It has been estimated that the $40,000,000 "loss" in 30 years has given the people of Great Britain a telegraph service which has saved them at least $150,000,000 in charges during the same period. If it were proposed to return the lines to private control because of the deficit, it would quickly be discovered that this loss is not so seriously regarded by the people of Great Britain as it is by the opponents of Government ownership in the United States.

When, by reason of its cheapness and prompt service the telegraph becomes an essential social as well as business utility, a universal recourse, an integral part of daily life, it will be found, as the people of England have learned, preferable to pay a general tax on a small deficiency, rather than high tariffs to provide a surplus for division among a few individuals controlling a telegraph monopoly. With us it is not necessary that there should be a deficit; but Government control seems necessary if the people are to enjoy the greatest possible use of electric communication at a minimum cost.

The bugbear of political patronage always comes up in this line of argument. It is not exactly dignified or patriotic to declare that our Government is so venal that it cannot be entrusted with the telegraph. If there should be any reason to anticipate the interference of spoilsmen, the nature of the service would, by arousing public indignation, preclude a repetition of the offense. It would disarrange and demoralize the service to have employees appointed by political favor. A telegrapher cannot be trained as easily as a postal clerk nor in the same way. Indeed, nothing would lead more directly to improvement in all branches of Government service than the establishment of a technical service, under strict civil service rules, with which politicians would not dare to meddle.

Apart from this, if the people want a Government telegraph they will take measures to have it well conducted, and opponents of the idea need not cherish so many misgivings on the political side.

The writer of the article neglected to state another fact which also has an important bearing upon his argument. The United States stands practically alone among nations in regard to Government ownership of the telegraph. Of seventy-five countries the telegraph is operated by the respective Governments in all except Bolivia, Cuba, Cyprus, Hawaii, Honduras, and—the United States.

Yet, in the face of this overwhelming evidence of the practicability and advisability of Government ownership, we are confronted with futile and trivial arguments and objections to offset the accumulated experience of the greater part of the world.

Order of Railroad Telegraphers.

The thirteenth regular biennial session of the Order of Railroad Telegraphers convened at St. Louis, Mo., on October 14, president M. M. Dolphin, presiding, with H. B. Perham as secretary. Delegates from every division of the Order in the United States, Canada, and Mexico were in attendance, and an immense amount of business was transacted during the several days of its session.

The following officers were elected: H. B. Perham, president; J. A. Newman, first vice-president; T. M. Pierson, second vice-president; D. Campbell, third vice-president; L. W. Quick, secretary-treasurer; A. S. Sinks and C. E. Layman, directors. The hold over directors are: L. A. Tanquary, T. W. Barron, and F. J. Reynolds.

The selection of Mr. Perham as president elevates to that position probably the strongest individual within the Order. He is a man of strong personality, conservative yet of broad gage in his ideas, of infinite tact and good judgment, and just such an officer as can be trusted to safely guide the intricate affairs of the organization. He is in the prime of life, in the best of health, and starts out with the esteem of both the railroad officials and railroad employees. We predict a bright future for the Perham administration, and congratulate the Order upon its wise selection.

Yukon Telegraph Rates.

The tariff rates adopted by the government telegraph service for the recently completed Yukon telegraph line have been issued by the Canadian government. The local rates at present in force on the line beyond Atlin are to be continued. The rate for any office on the line, above or below Atlin, to or from Ashcroft, is to be on the basis of 50 cents for the first 100 miles, and 25 cents for each additional 100 miles, which would figure out from Dawson to Ashcroft $4.50 for 10 words and Atlin to Ashcroft $3 for 10 words, the usual proportionate rate for additional words being 30 and 20 cents respectively.

For through business the proposed rate contemplates 30 cents for additional words where the 10 words each is over $4; 20 cents for additional words $3 up to $4; 15 cents for additional words $2 up to $3, and 10 cents for additional words $1 up to $2.

The cable rate from Europe will be 35 cents per word with a minimum of $4 to any point on the line. The press rate will be 5 cents per word except to Skagway, Shops and Glacier, in Alaska, and Bennett, Log Cabin, White Pass and Frasier, in British Columbia, points on the White Pass line, where the rate on press matter will be 6 cents per word, and the cable rate 43 cents per word, with a minimum of $4. The minimum charge for any one press dispatch to any point will be $3.

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Telegraphers' Mutual Benefit Association.

Assessment No. 385, has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of J. E. Zeublin at Chicago, Ill.; L. H. Shults at Baltimore, Md.; J. S. Evans at Tybee, Ga.; D. E. Martyn at Kansas City, Mo.; M. Gordon at Bellaire, O.

The annual meeting of this association will be held in the Western Union Building, 195 Broadway, New York, at 4 o'clock, on Wednesday, November 20.

As the by-laws require that at all meetings of the association thirty members present in person, representing one-third of the entire membership, shall constitute a quorum, members who cannot attend are requested to sign proxies and return the same to the agent or forward to the secretary's office, New York, at the earliest date convenient, in order that there may be time for checking and listing the same.

Water and Writer's Cramp.

Mr. Ahern, of London, England, one of Marconi's telepraph experts, while on his way to the international yacht race recently, was seen to let his hand drag through the salt water. When asked for an explanation, he said:

"I am good for 10,000 extra words," and he rubbed his wrist in a patronizing way. He added:

"I have found that by placing the wrist in cool water for half an hour any operator is able to double his energy and endurance for the following twelve hours. The wrist is the main machinery of the telegraph operator. Its muscles and nerves are dependent upon perfect action. This immersion in the sea is worth considerable money to the company. Not only can I send quicker, but I can send better Morse and with greater endurance."

Copper Wire Thieves Caught.

Three wire thieves were caught near Chester, Pa., in the act of robbing the poles of the Western Union Telegraph Company of copper wire, on October 11. This point is where a theft of this character has been committed almost weekly during the past two years, both telegraph companies suffering alike in the depredations. The gang of thieves had succeeded in escaping arrest so long, that the companies were about to substitute iron wire for the copper wire, in order that their circuits might be maintained intact.

Cuba Submarine Telegraph Company.

At a meeting of the Cuba Submarine Telegraph Company at London, England, on October 23, the chairman expressed confidence that the United States Congress would, at its coming session, appropriate funds to pay the company's war damage claim of $4,237. Regarding the arrears of the subsidy, amounting to $25,000, the chairman said he expected the amount would ultimately be paid, but this depended on the settlement of the future relations between Cuba and the United States.

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LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.]

BEAUMONT, TEX., NOTES.

The telegraphers of Beaumont and Galveston are receiving the congratulations of their friends from all over the country, because of the successful completion of their oil gusher on Spindletop Heights. The "Eureka" oil company is composed almost exclusively of operators. It was promoted by Messrs. P. G. Tompkins, manager of the Western Union, at Beaumont; C. W. Davis, of the Galveston Western Union, and now manager of the Eureka Oil Company; F. C. Cole, night chief, and L. F. Fox, of the Western Union, at Galveston.

The Eureka well is one of the best in the field, and a test made at the time of its coming in, gives it a registered capacity of 50,000 barrels daily. The Eureka stock also enjoys the distinction of being the only Texas oil stock that has never sold for less than par value, and none of its stock can now be purchased at any price.

Manager A. J. Escude, of the Postal, has resigned to go into the oil business. Mr. Frank Darling, who for some time has been Mr. Escude's assistant, has been appointed his successor.

Mr. J. M. Laurendine, of Atlanta, Ga., is among the recent additions to the Western Union force.

Mr. C. Peacock, an old commercial operator, and for several years chief dispatcher of the Southern Pacific Company at Beaumont, died on the 7th inst., of inflammatory rheumatism. He was one of God's noblemen, and the profession loses one of its best men.

Mr. C. E. Berry, of Evansville, Ind., is now chief operator of the Stag Pool Rooms.

PITTSBURG, PA., WESTERN UNION.

George W. Timney, formerly of this office, has returned to his old position with the Pittsburg, Fort Wayne and Chicago Railroad, at Alliance, Ohio.

E. D. Walker has resigned.

A. R. Stone has been made manager of the office at Warren, Pa.

CINCINNATI, OHIO, POSTAL.

Fred. Huntsman has been appointed manager at Fostoria, vice A. R. Wilson, promoted.

Operator J. P. Randall, relieved manager, Miss M. S. Griswold, at Hamilton, during a recent brief absence.

This company has completed new wires from this point to New York, and also from here to Indianapolis, Ind.

Recent visitors: Wm. H. Baker, vice-president and general manager, New York; E. J. Nally, general superintendent, Chicago; S. A. Duncan, as-

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sistant general superintendent, Atlanta, Ga.; T. W. Carroll, electrician, Chicago; J. B. Hayes, manager, Eaton, Ohio; R. W. Daniels, manager, Wellington, Ohio.

On the night of October 17, Sylvester F. Reid, night telegraph operator at Augusta, Ky., was shot in the head and severely wounded. The bullet came through the window, and it is believed to have been fired by a tramp on a passing train.

Miss McKenna has been added to the force here.

The many friends of H. L. Bennett mourn with him for the death of his wife, October 10.

CHICAGO, ILL.

Typewriters bought, sold, rented and repaired. Renting a specialty. Also Agency for "Telegraph Age." Telegraphers' Typewriter Co., Room 5, 122 La Salle St., Chicago, Ill.

SOMETHING NEW—no operator should be without. The Eacutt-Cawthern Typewriter Cleaner is a simple little brush; can be inserted in machine in two seconds, type thoroughly cleaned in 30 seconds without soiling fingers. Formerly required 15 minutes, and soiled and inkstained fingers. Price 50 cents, postpaid. Agents wanted. Eacutt and Cawthern, Room 704, 86 La Salle St., Chicago, Ill.

POSTAL.

Mr. Edward Stanton is now night time-keeper, vice Arthur Hanlon, chief check.

Mr. Ditch and Mr. Tanner left for New Orleans, where they have accepted positions with the Postal.

Messrs. John Forest, Harry Dunbar, James Barnett and Elmer Simpson were recent visitors at the Buffalo Exposition.

Messrs. P. Williams, C. G. Seward and J. Cleary are among the recent arrivals. Mr. Gradzki has been assigned to a branch office. Mr. J. T. Cawthorne, of the Board of Trade office, is the inventor of a type cleaning brush for typewriters.

Mr. Paxton is working the late night trick, Mr. Forest the Pittsburg bonus wire.

WESTERN UNION.

At the regular meeting of the Executive Committee of the Telegraphers' Mutual Aid Society, the resignation of A. J. Gallagher, the president, was accepted, and Mr. Perry F. Miller, vice-president, was appointed to fill out the term, Mr. Otto Enking, of the Western Union, being appointed to the vice-presidency. Members will please take notice.

Mr. Louis Benson has been confined to his home with a touch of rheumatism.

The beautiful penmanship of Mrs. Harry Austin is admired by all.

Mr. Harry Jones returned from a short vacation, feeling well braced up.

Mr. Frank Donaldson is assisting Chief B. F. McKee on the early morning trick.

Mr. C. E. Clapper, a recent arrival here, holds a fine record in the athletic world as a high jumper.

Mr. E. J. Dolen has the sympathy of all in the sudden death of a brother in Iowa who was manager of a Postal Telegraph-Cable Co. office.

There was recently exhibited in the operating department some fine pen and ink sketches and among the best were those of Mr. Parker, of the Des Moines wire, and Mr. A. H. Stoner.

A report was current recently that one of our well-known operators in this office had made some large winnings in the stock market, but the gentleman to whom this report is accredited is still putting "five words on a line."

Mr. A. B. Cowan, our popular assistant night chief operator, has returned from a ten days' fishing trip in the northern part of this State, his position being filled during his absence by Mr. Oscar Olson, the Eastern wire chief.

ST. LOUIS, MO., POSTAL.

Miss Lydia Herdeman, for several years an employee of this office, died September 19.

Mrs. Ellen Roche, mother of Alex. J. Roche, of this office, and of Wm. Roche, an operator whose present whereabouts is unknown, died September 28.

Arrivals: Miss M. L. Wilson, F. P. Mullen, J. R. McDonald, H. W. Thorp, F. A. Grace, F. A. Clogston, P. Mercer, S. A. Mulroy, J. F. Robb, M. Halpin, C. D. Hewlett, D. G. Ellington, H. D. Roach, George Martin, and J. D. Smith.

Departures: H. P. Wells, J. A. Latture, R. H. Caldwell, F. E. Parker, J. M. Strong, Miss Mamie Mullen, J. M. Alvis and L. C. Bader.

Vacations: W. H. Miles and Roy K. Talbott.

PHILADELPHIA, PA., WESTERN UNION.

Robert H. Morris, electrician from New York city, and Robert Morris, Jr., from Pittsburg, Pa., were recent visitors. The latter will probably locate with us in the near future.

R. T. Brown, who was with us for some time, is now located at El Paso, Tex.

Dr. A. H. Reynolds, dentist, who is still doing a short day trick for The Associated Press, is having well-deserved success in his profession and is building up a very lucrative practice.

Since the wholesale vaccination took place the common form of salutation now is: "How's your scab?" In passing each other, a cringing attitude is observed and the left arm jealously guarded.

KANSAS CITY, MO., WESTERN UNION.

Chester F. Beeson has been appointed to fill the position made vacant by the death of Night Chief Operator Daniel E. Martyn, and the honors could hardly have been more worthily bestowed. He has served the company in various positions for the past twenty years and has proven himself equal to all emergencies. Mr. A. R. Pippitt takes Mr. Beeson's place as wire chief, being relieved on quads and loops by Chas. R. Fisher, transferred from day force. Gilbert V. Burns takes the latter's place as assistant loop chief, changes which complete the reorganization.

Miss Kathleen O'Brien, formerly of this office, now of Denver, Col., was calling upon her old friends recently, and her very healthful appearance speaks volumes for the western climate.

Mr. Samuel Sheets has packed his grip and gone to the sunny South for the winter.

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Mr. and Mrs. E. H. Hobart recently returned from a two weeks' vacation among the Ozark Mountains of southern Missouri.

Messrs. C. H. Daniels, J. H. Vogan, F. E. Redline, Frank Vestal, Arthur Killick, Chas. Hagen and Peter Uken were off for a two weeks' pleasure trip in the vicinity of Chilton, Mo.

Mr. H. D. Roach has taken up his abode in St. Louis, Mo., having engaged with the Postal Telegraph Co.

NEW YORK CITY.

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WESTERN UNION.

Mr. Harry W. Sauer, president of the New York Telegraphers' Aid Society, returned recently from the Catskills, where he has been sojourning for several months, and while greatly improved in health is not fully in condition to resume work indoors.

Miss Emma Firl, of the New Britain, Conn., office, who owing to her many admirable qualities, has won the high esteem of all in the eastern division who work with her, was a recent visitor.

Mr. J. F. McGannon, assistant traffic chief of the southern division, has been assigned to the night force at his own request, and Mr. Arthur M. Lewis will take the place vacated.

Mr. W. J. Evans has resigned to take a course in medicine at Cornell University, of Ithaca, N. Y.

Mr. J. G. Kelly, of this office, died at the Home for Consumptives, Brooklyn, October 21.

Mr. Ellis E. Beebe, an old-timer from the West, and lately from Beaumont, Tex., where during the past year he has become an "oil king," was a recent visitor. Mr. Beebe has taken an interest in the banking firm of W. G. Hudson & Co., of Boston, Mass., and will remain in New York as its representative.

Appointments: L. A. Walters, B. J. McLoughlin, D. F. Baker, J. Rosenbaum, L. McGinnis, H. Lieber, H. R. Klitz, M. L. Snyder, I. Baker, C. A. Beah, C. P. Martin, H. Gersch, A. C. Barnhardt, E. McBride, J. D. Wooten, T. H. Grady and W. C. Wilson.

Resignations: T. P. Murphy, A. E. Fredking, J. H. Ryan, J. D. Daggett, W. J. Evans, F. A. Post and W. A. Young.

John de la Motte, son of the veteran observer at Sandy Hook, N. J., who was an operator in this office, has gone to Atlanta, Ga., for the winter.

Mr. George S. Brown, who left here for Colorado about two years ago, is quite ill at Redlands, Cal.

Miss Melita Brown has returned to work, after several weeks' illness.

The recent appointment of Mr. M. L. Harner as a traffic chief gives much satisfaction to all concerned. Mr. Harner is gentlemanly and devoted to his new duties.

Miss Lottie Wiggin, of the Wheatstone Department, is confined to her home with a severe illness.

Misses Grace and Ruth Worthington have returned, after spending a two weeks' vacation in the mountains.

Thomas Donahue has returned, after an absence of six months.

Miss May Gifford has been transferred to the Wheatstone Department.

Senator W. L. Ives, of this office, is devoting almost every night to enlightening the voters in Brooklyn as to how they should cast their ballots. The senator, as a campaign orator, it is said, has few equals. Walter C. Burton, also of this office, is campaigning on the opposite side, and it remains to be seen who will make the most votes for his party.

POSTAL.

Frank Ganung, of the Subway Department, has returned from his vacation, passed at Greenwood Lake.

Mr. J. J. Madden is also back from a vacation.

$100 Reward, $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages and that is Catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials.

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Appointments: F. A. Shandley, J. F. Logan, Charles Bossler, T. F. Hannigan, Mrs. Dieckman and Mrs. MacConnach.

W. H. Rhodes has returned, after an absence of three weeks, caused by illness, and has been assigned to the Second Philadelphia bonus wire.

Mr. J. P. Gallagher has been assigned to the first Philadelphia bonus wire.

Changes of hours on early force: J. D. Mann and G. R. Knaess, W. C. Morris and Wm. Stirling, M. J. O'Donnell and J. H. Havice.

Frank O'Meara has gone to The Journal office.

BOSTON, MASS.

Typewriters for sale, to rent and repaired. Remington, Smith, Densmore and all makes sold or rented on easy monthly terms to telegraphers. Send for samples, catalogues and full information to E. M. Bennett, Manager, The Typewriter Exchange, 38 Bromfield Street, Boston, Mass.

POSTAL.

Mr. T. F. Sullivan, of the Globe night force, has returned from New Haven, where he was sent to help out on press matter during the Yale bi-centennial.

The Canal street branch has been removed to Hotel Haymarket.

Miss Costello has been appointed manager at the post office, vice Mrs. H. Joyce, resigned.

Miss McVey has been transferred to the Castle Square hotel branch, vice Miss A. M. Haggerty, resigned.

Miss Blanche V. White has been appointed manager at Hotel Plaza, vice Miss Simmons, resigned.

Mr. H. L. Fishascher has resigned to engage in other business.

Among the new arrivals are: Miss A. M. Austin, B. J. Kearney, from Woods Hole; F. C. Bradbury, from the Wesern Union, Bar Harbor; D. J. Conroy, D. J. Sullivan, F. J. Burchard, F. R. Johnson, R. H. Johnson.

Resigned: W. G. Howard.

PHILADELPHIA, PA., POSTAL.

Night Traffic Chief Walton Smith made application for a transfer to day duty and was accommodated; unfortunately, however, sickness interfered with the fulfilling of the plans. It was expected that Mr. Smith would relieve Mr. Harry Thompson, assistant day traffic chief, who, on account of continued muscular trouble with his left limb, has asked to be assigned other duties not requiring so much walking.

Meanwhile, Mr. Milton Connell, of the night force, has been appointed traffic chief in Mr. Smith's stead.

On top of this promotion, Mr. Connell contracted a still more important matter when, on the evening of October 23, he was married at his home in Ebensburg, Pa., to Miss Edith Little Barker, of that place. A host of friends extend hearty congratulations.

Mr. Clinton Christine has been transferred from the Ordnance to the Equipment Department at the League Island Navy Yard. This move has its accompanying advantages.

The Camden, N. J., office is now under the care of Mr. Henry G. Stewart, Mr. M. Auerbach having been transferred to this office at his own request.

A new son has arrived at the home of Mr. Oscar H. Phillips.

Mr. A. H. Friese, agent and operator at Pocomoke, Md., while en route to Buffalo, made us a friendly call.

Mr. Heber C. Robinson has been absent quite a while, superintending the construction of telephone lines in New Jersey.

Not having found employment with a private firm quite as desirable as anticipated, Mr. J. A. McKain returned to this office.

Other arrivals are: Messrs. Joseph Lane, W. E. Joyce and John J. Sullivan.

Fred. E. Brown has resigned.

Mr. Furman, of the first, New York, is developing into quite an expert photographer.

A birthday party at the home of Miss Jennie Hallman, of this office, was quite eventful, if a flash-light photograph can be regarded as authentic evidence.

WASHINGTON, D. C., WESTERN UNION.

Mr. Dennis Brown, southern wire chief, has just returned to the switch, after an absence of ten days, due to a severe attack of sciatic rheumatism. During his absence Mr. Dowling acted as southern wire chief, and Will Patton relieved Mr. Dowling as traffic chief.

Mr. J. F. Riley has returned to duty, after a spell of sickness.

Mr. John Sampson is slowly recovering from a stroke of paralysis.

Mr. James Hayes has returned from a two weeks' fishing excursion down the Potomac.

Mr. P. C. Hyam has returned to the main office, after a month's service at the Navy Department, vice Charles Oliver, who took his annual leave.

Mr. J. S. Thompson is visiting in Buffalo.

Mr. Eugene Cadmus is visiting relatives in New York State.

Mr. L. E. Steele has returned from Roanoke, Va., where he went to relieve Manager Rawie, who took a short vacation.

Mr. W. E. Peirce is mourning the loss of a very handsome diamond ring, which he lost recently.

Major John Vowles is watching repeaters at night, during the illness of Mr. Harry Larcombe.

Messrs. Field and Harrison have returned to duty, after brief absences, due to illness.

SAVANNAH, GA., POSTAL.

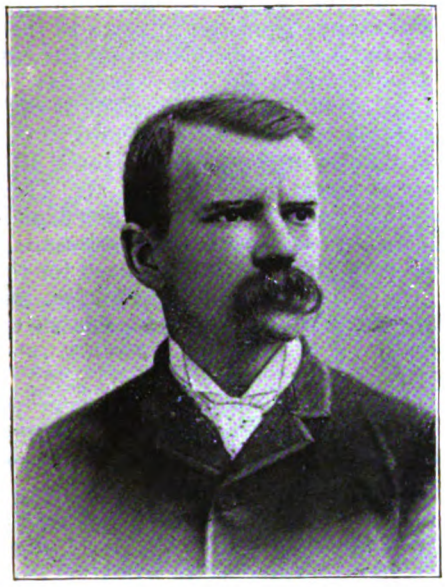
Business is on the boom.

The personnel of this office is as follows: P. H. Hughes, manager; W. A. Larey, chief operator; R. H. Miller, W. B. Jenkins, R. W. Ballard and O. T. Hughes, operators; W. A. Boyle, bookkeeper; clerks: receiving, J. S. Sullivan; delivery, John J. Scott; collector, W. M. Nelson; repairers, G. B. Marvin and P. H. Beaton.

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Death of James C. De Long.

James C. De Long, one of the best-known telegraphers in the West, died at Chicago, Ill., on October 18, after a lingering illness of nine months. He was probably one of the finest receivers that ever graced his profession. He was chief operator at the Chicago Tribune office almost continually from the time that the Mutual Union Telegraph Company put in the first "loop" in that office in 1881, except during a few years when he went to southern California with his wife, on account of her poor



THE LATE JAMES C. DE LONG.

health. She died some years ago. In 1879 Mr. De Long was a member of the New York city force where he did some brilliant telegraph work. He was born in Cambridge, Ohio, on July 27, 1852, his father being judge of the probate court and afterward consul general in South Africa. Mr. De Long was a member of Morse Council of the National Union and the Telegraphers' Aid Society. The remains were interred in Rose Hill Cemetery on Monday, October 21. Mr. De Long leaves a son and daughter.

Obituary Notes.

Charles Mitchell, a telegraph operator at Hamilton, Mo., was instantly killed by a train, October 13, while delivering a message to the engineer.

C. J. Abbott, of New York, an expert telegraph operator, for many years past employed by The Anglo-American Telegraph Company, died of consumption on October 2. Mr. Abbott was one of the best receivers in the cable service, and was the support of his widowed mother. He remained at his post of duty until ten days before his death.

Those who contemplate subscribing for TELEGRAPH AGE, and who would first like to inspect a sample copy, should not fail to write for the next issue.

Personal.

Mr. John I. Sabin, president of the Chicago and Central Union Telephone companies, an old New York operator, has returned from Europe.

Mr. F. N. Bassett, formerly assistant general manager of The United Press, New York, is now general sales agent of the Vista Hermosa Sugar and Mercantile Company, of Chicago.

Horace N. Snow, who was one of the members of the United States Military Corps during the Civil War, and who retired from the telegraph service immediately after the close of hostilities in 1866, is now and has been for the past twenty years cashier of the Blackwell Durham Tobacco Company at Durham, N. C.

Mr. B. E. Sunny, of Chicago, an ex-telegrapher and now western manager of the General Electric Company, whose interest in juvenile-reform work is of long standing, has been appointed one of three trustees for the Home for Delinquent Boys which has been authorized by the Legislature of Illinois. Governor Yates made the appointment.

Gen. A. W. Greely, chief of the United States Signal Office, recently arrived at London, after five months in Japan and the Philippine Islands. After making some investigations in London, in connection with the cable service, he will return to Washington. General Greely is satisfied with the efficiency of the 6,000 miles of cable and telegraph lines now working in the Philippines, and he is enthusiastic over the Japanese telegraphic systems.

New York Visitors.

Mr. E. J. Nally, general superintendent of the Postal Telegraph-Cable Company, Chicago, Ill.

Mr. Max Handler, of the Gold and Stock Department of the Western Union Telegraph Company, Cleveland, Ohio.

Miscellaneous Items.

Mr. Benj. C. Wilkins, manager of the Western Union Telegraph Company at Ashland, Wis., dedicated a poem entitled "Our Nation Mourns," to the late martyred President McKinley, which has gained great publicity through the daily press. Mr. Wilkins is a poet of exceptional ability.

A coroner's jury which investigated the cause of a railroad smashup on the Great Northern Railroad in Washington, lately, resulting in the death of several persons, rendered a verdict censuring the railroad company for keeping on duty for twenty consecutive hours the telegraph operator who was responsible for the wreck. The railroad company claims that this was necessary in this emergency, on account of the impossibility of getting additional operators. Several other wrecks of less importance, but resulting from similar causes, have occurred within the last few weeks.

Mr. J. W. Yealy, train dispatcher on the Pennsylvania Railroad at Pittsburg, Pa., and one of the best known men in the telegraph service, also a

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member of the Old Time Telegraphers' and Historical Associations, has announced himself as a candidate for member of the advisory board of the Pennsylvania Railroad Voluntary Relief Association. Mr. Yealy has been connected with the road for thirty years. He is a gentleman of good address and has maintained himself in good standing with all the employees. If elected, it is safe to state that his work will be satisfactory. He has the endorsement of some of the best men in the Pennsylvania Railroad service.

Mr. John D. Rockefeller has a private wire between his mansion at Forest Hill, Cleveland, O., and the Standard Oil offices in New York, and, with the aid of an operator, transacts all his business, involving millions, as though he were in New York. He uses the long-distance telephone occasionally, but never for important business. The mails he never uses. He devotes certain hours daily to work and has his secretary and telegraph operator constantly at his side. He never writes his messages, but simply talks to the operator as though he were engaged in conversation with another oil magnate in his New York office. When a question is asked the reply comes back instantly. The private secretary and telegraph operator of Mr. Rockefeller, referred to, is Mrs. Mattie Tuttle. This lady entered the employ of the Standard Oil Company, at Cleveland, O., in 1872. She was then Miss Mattie Skinner, a native of Minnesota. She was a first class telegraph operator and at once became the trusted secretary of Mr. Rockefeller and has remained continuously in his employ with the exception of a period of about two years of wedded life. When her husband died she re-entered the service of Mr. Rockefeller.

A reception of the Ladies' Catholic Benevolent Association, under the auspices of the Brooklyn Advisory Board, was tendered to the president of the organization, Mrs. Mary E. Costelloe, at the Pouch Mansion, Brooklyn, October 4. The affair was a pronounced success, as members of the association, not only from Brooklyn, but from branches throughout New York State and New Jersey, assembled to join in attesting the appreciation and esteem in which the popular president is held. A program of merit was interpreted by well known local artists. The occasion also gave the members an opportunity to express in a substantial manner their love for her, and this portion of the program was the bright particular feature of a memorable occasion.

A beautiful diamond pin, with thirteen stones, and a gold chain attachment, was presented to the president by her associates on the Advisory Board. From the various local branches came a costly and handsome gift, as a recognition of the zealous spirit with which Mrs. Costelloe had labored while acting as the supreme deputy and supreme treasurer of the order.

This well known lady is the wife of John Costelloe, the popuar manager of the Postal Telegraph-Cable Company office, Cotton Exchange, New York.

MAGNETIC CLUB.—The fall meeting of the Magnetic Club, of New York, will occur on November 20. The delegates from out of town to the annual meeting of the Telegraphers' Mutual Benefit Association, which meets on the same day, will be guests of the club, and will be present at the annual dinner of the latter, which occurs at 6.30 P. M. on the above date at the St. Denis Hotel, Broadway and Eleventh street, New York. Mr. Thomas F. Clark, vice-president of the Western Union Telegraph Company, will make an address. A very interesting program is being prepared for the occasion by the Entertainment Committee, and it is hoped that there will be a full attendance of members.

The International Exposition of Fire Preventing and Extinguishing Appliances at Berlin, Germany, closed on the 15th of September. The most prominent American exhibit was that of the Gamewell Fire Alarm Telegraph Company, of New York, which was represented by Mr. A. L. Tinker, of that company. The display was a very complete and handsome one, and attracted much attention and favorable comment abroad and won the gold medal.

The Cane Belt Railroad, Eagle Lake, Tex., which has up to this time used the telephone, will at once put in the telegraph system. Mr. Leo Levy, Western Union operator at Eagle Lake, has been appointed train dispatcher for the company.

The number of telegrams handled in Japan in 1889 was 3,500,000; in 1899, a decade later, the number had increased to 15,500,500.

"I think it is just horrid!" she exclaimed, "I hear the whole night force nearly are suspected of being anarchists!"

"Yes," he solemnly admitted, "you see it has all come of their associating with the 'reds!'"

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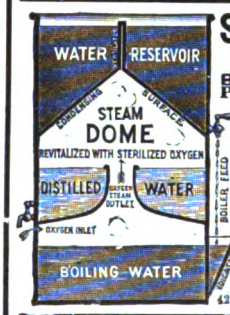
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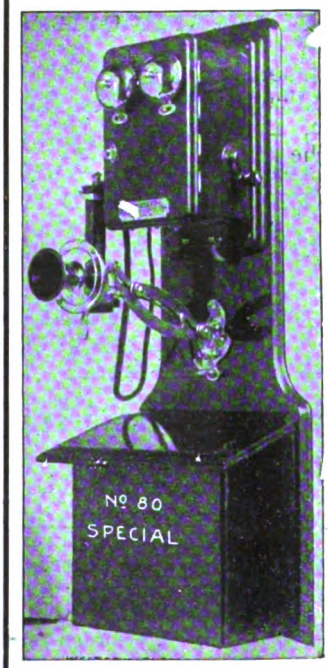
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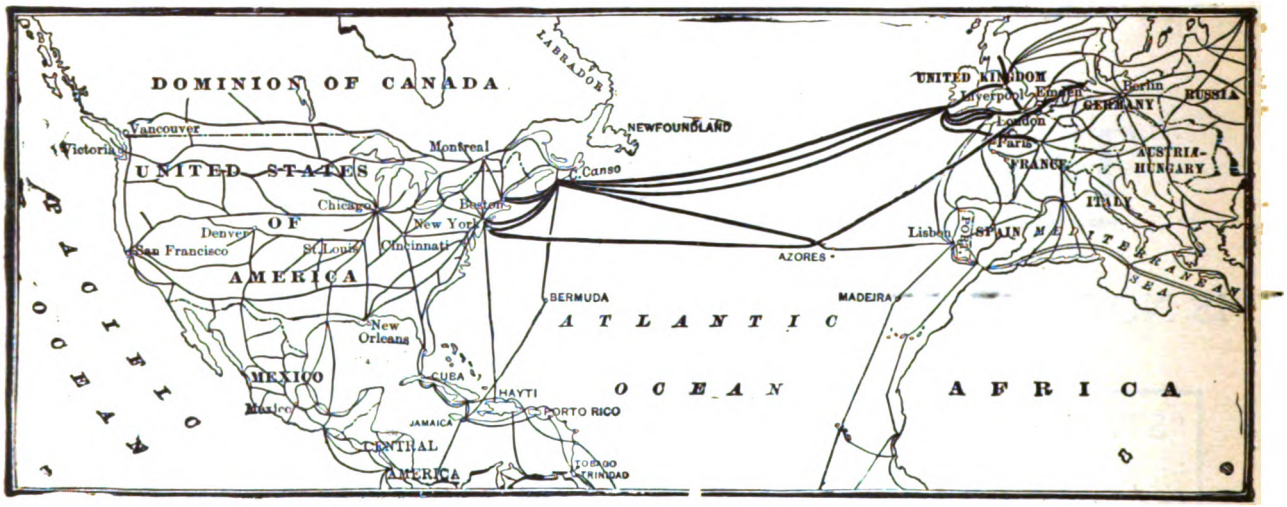
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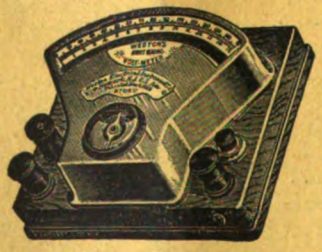
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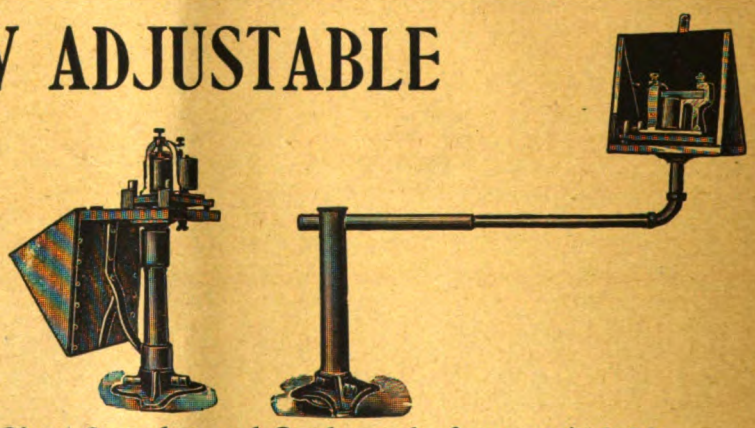
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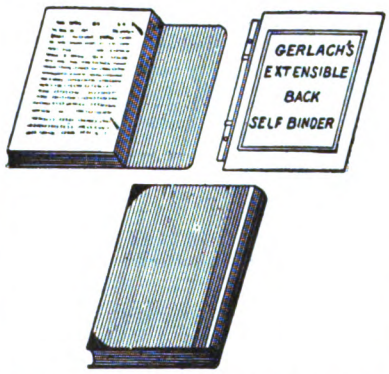
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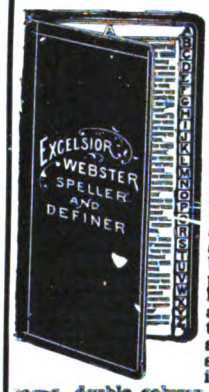
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THE TELEGRAPH AGE.

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SOME POINTS ON ELECTRICITY.

The Equipment of a Modern Telegraph Office.

(Continued.)

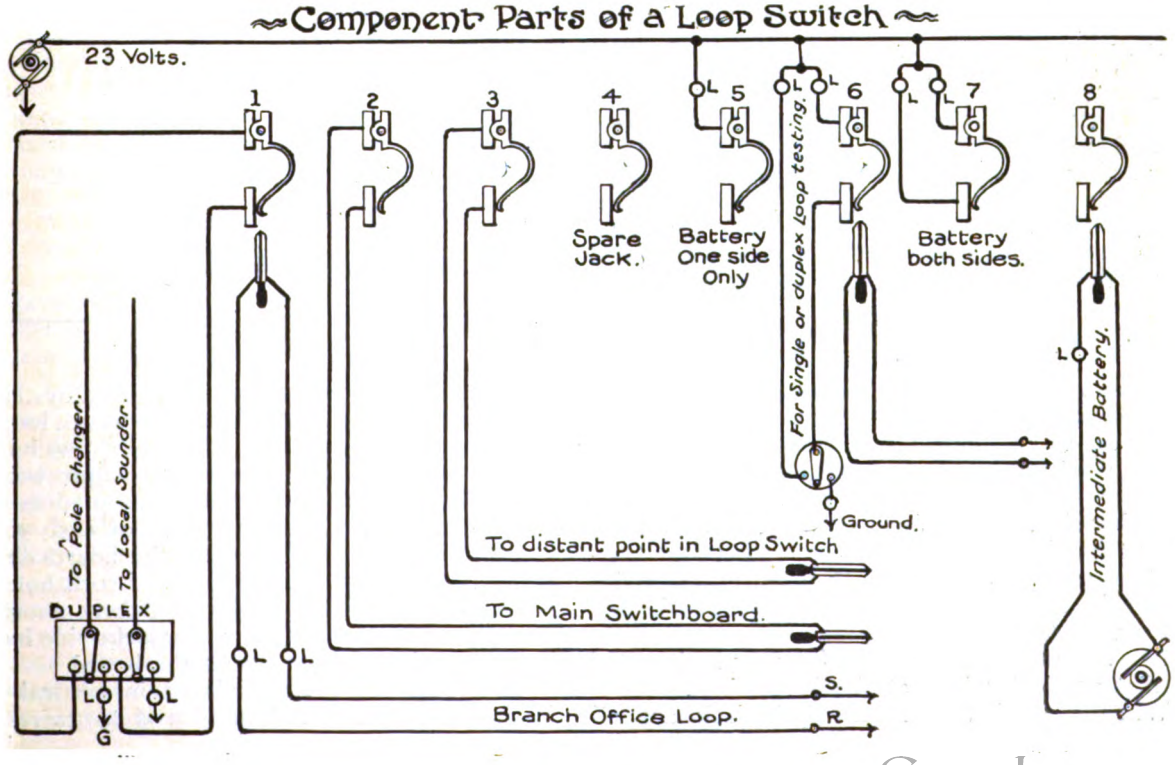
BY WILLIS H. JONES.

[In the September 1st issue of this journal Mr. Willis H. Jones began a series of articles showing the complete details of equipping a modern telegraph office. Beginning with the proper selection of the dynamos, his aim will be to carry the reader step by step from the cellar to the operating department; thence through the labyrinth of house wires underneath the floor to the various apparatus, stating the size of wires to be used for the main and sub-leads, and last but not least, to give a full and accurate reason for each move.

The series will be a complete handbook for any one contemplating the instalment of a new office or making alterations in an old one. The value of these important articles will be such as to interest a wide circle of readers, and those who desire to follow them in their consecutive order should send in their subscriptions at once.—Editor.]

In the preceding issue of this journal a system of house and desk wiring suitable for grounded local circuits employing but one common dynamo to furnish current for both loop and multiplex apparatus was shown diagrammatically up to the point where the local connections of the latter are extended to the loopswitch from the left hand disks of the double three point switch on top of the table.

Particular attention is called to this switch, as it is there that a means is provided by which a



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given strength of current from one and the same machine will actuate the local apparatus of a duplex or a quadruplex with equal efficiency whether a branch loop be connected in circuit therewith or merely the desk instruments alone; in other words whether a loop be "cut in" or "off."

This convenience is accomplished by attaching to the right hand disk of each switch a grounded conductor containing a lamp or other resistance, the value in ohms of which is identical with that of the resistance of the branch loop connected to the left hand disk. With this arrangement you will see that regardless of the position of the two switch levers the "length" of the local circuit (measured in ohms) fed by the dynamo is identical, hence the same volume of current will flow through the desk instruments at all times.

The resistance of the lamps employed for this purpose should be identical with that which represents the uniform ohmic value of the built-up branch loops. Thus, if all loops be built up artificially to a value of exactly 100 ohms then every compensating desk lamp should also contain 100 ohms resistance. The "lengths" of all loops should be made equal by inserting lamp resistance in the branch conductors sufficient to bring each leg up to a given uniform value. Thus, if 100 ohms represent this uniform resistance, a 40-ohm branch conductor would require a 60-ohm lamp in series with it to build that circuit up to the standard value. In like manner 10, 30 and 90-ohm legs would require, respectively, 90, 70 and 10-ohm lamps to even them up. The artificial resistance is inserted behind the loopswitch where the branch office legs of all multiplex loops first pass through lamp sockets. (See diagram.)

The Loop Switch.

Every modern telegraph office should possess a so-called "loopswitch." In reality it is not a loop-switch, but a centrally located lot of springjacks by means of which loops which are grouped there may be extended to any distant part of the room, and where wires located in different switchboards may be connected together metallically or through repeaters by means of extension conductors radiating therefrom in all directions. The first accompanying diagram shows the principle uses to which the springjacks are put, the number of assignment, each, of course depending upon the demand.

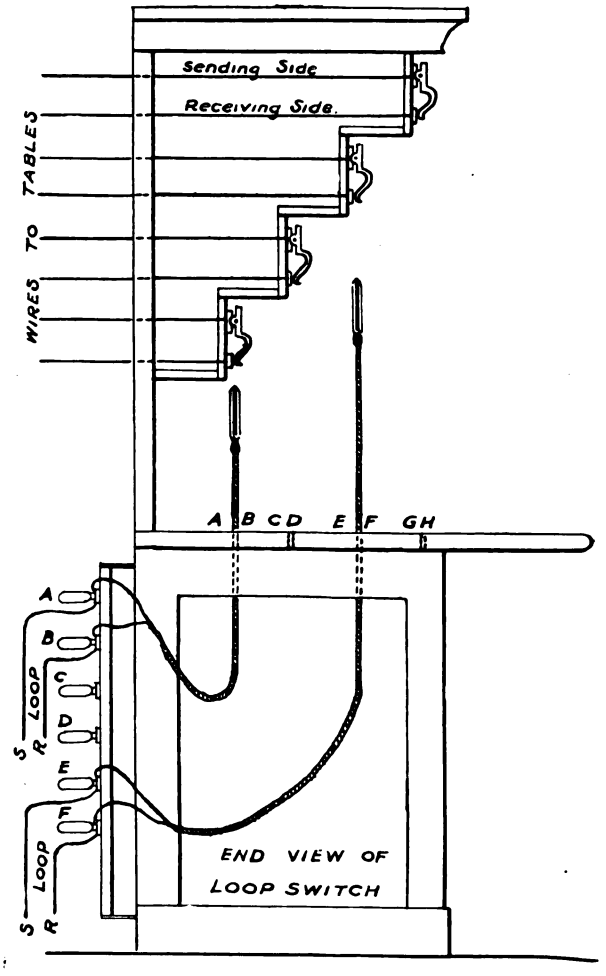
Thus springjack No. 1, and as many others as may be required for the purpose, represent the local connections of multiplex apparatus. The upper lip should invariably be connected by wire to the sending side disk of the three-point switch at the multiplex table and the under lip to the receiving side. No. 2 connections represent extensions to various parts of the room where the conductors end in wedges which may there be inserted in any desired circuit within reach and carry with them any loop, repeater, intermediate battery, or other apparatus which may be inserted in that particular jack at the loopswitch.

When a cord wedge and springjack are all contained in one switch the combination is called a "flip."

Other springjacks are employed for battery or testing purposes as shown in the cut.

There should be no trouble in wiring a loop-switch as the various connections are plainly shown. The springjacks should be arranged in rows divided into three or four tiers, each of which latter should project out and over the one beneath it to a distance sufficient to permit loop cords inserted in one tier to hang free of those in the tiers below.

The second cut showing one end of the switch-



board illustrates the manner in which a systematic record is kept of the exact location of each loop and its individual lamp sockets. The cut shows but one row of lamp sockets and one of augur holes in the desk shelf through which the loop cords come up from below. Duplicate rows of each extend side by side the full length of the board directly under the springjacks. The row of cord holes are numbered from left to right, and there should be as many rows as there are springjacks side by side in one full length tier across the board.

The lamp sockets are placed in vertical rows behind the switch and numbered to correspond

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with the horizontal rows of holes in the shelf (as it appears to the eye in the illustration), but there must be two lamp sockets for each augur hole, one above the other, because the cord contains two conductors; that is to say, the sending and the receiving legs of the loop.

Then, in order to locate the proper lamp for a leg of any given loop, the sockets are also lettered, beginning with A at the top and continuing down the row alphabetically. Thus, the first two lamps at the top would be A and B. A would represent the lamp for the sending side, and B that for the receiving leg of a branch loop. The cord for the loop traversing A and B lamp sockets should of course be run through the first hole in the desk shelf, counting from the inner edge. The cord for the second pair of lamps, B and C, should come up through the second hole; the third couple through the third, and so on to the bottom. Finally, to make the record complete, the augur holes themselves are lettered to correspond with the lamp sockets, beginning with A at the inner edge of the shelf. The first hole would be A and B; (one letter for each cord conductor) the second B and C; the third C and D, etc., to the outer hole.

For the benefit of those not familiar with the location of the loops, a switchbook should be kept showing the exact spot where any desired loop may be found. Thus, should the book show that loop No. 1 was in section A, row 7 E F, we would immediately turn to section A (provided of course that the board was divided into sections) and pick out the cord and wedge in the third hole from the inner edge of the shelf in row 7, counting from the left. Should this same loop open on, say the sending side, and we suspected a loose connection in the lamp, the latter would be found to be the 6th lamp from the top of row 7 in the same section. The ends of the green cord should be wound with different colored twine in order that the sending and receiving conductors may be easily distinguished when connection is made with the lamp sockets. The two sides of the wedge should also be marked S and R respectively in order to place the conductors properly in the springjacks.

(To be continued.)

Business Notices.

Have you lost your grip? You can recover it by using a Twentieth Century Telegraph Key. Address Foote, Pierson & Co., 82-84 Fulton street, New York.

The International Correspondence Schools of Scranton, Pa., the largest institution in the world conducting a system of education taught by mail, brings its course of instruction in the field of telegraphy to the attention of operators through the medium of an announcement, printed on advertising page ix in this issue. It is not designed, as there stated, to teach telegraph operating, but to furnish operators, whether in the commercial or railroad service, with the practical instruction necessary to fit them for advancement in their profession. The course pursued is especially thorough in all of its details, and is under the direct superintendence of fully competent instructors. The text books used are remarkable for their excellence, comprehensiveness and clearness of statement, and fully cover the subject taught. No telegrapher who desires to fully master the technicalities of his profession, should hesitate to enroll himself as a student in the Correspondence Schools.

Mr. D. A. Mahoney, of the Western Union office, Philadelphia, Pa., announces in his advertisement, printed elsewhere, in this issue, that he has been appointed agent of the Fay-Sho typewriters in that city, and that he is prepared to rent machines of all makes to members of the fraternity at special prices. Mr. Mahoney is an old-timer in the typewriter business, as well as being an old-time telegrapher, and he is prepared to satisfy his old associates in the line of bargains in "mills."

Miscellaneous Items.

Mr. W. I. Frost, agent and operator of Tiverton, R. I., was elected representative to the legislature of that State, November 5.

John F. Cleverdon, of the electrical engineers office of the Postal Telegraph-Cable Company, New York, has returned from a trip to Nova Scotia, where he spent two weeks with his parents and friends.

Mr. E. S. Sherwood, manager Postal Telegraph-Cable Company, Fremont, O., has undergone a successful operation, which it is expected will greatly improve his general health, which has not been of the best for a number of years past.

Mr. John Mitchell, manager of the telegraph department of the New York Herald, New York, his returned from the Nantucket Light Ship, where he has been for some time past, installing the Marconi system of wireless telegraphy, in the interest of the Herald.

Mr. David Martin, of the Commercial Cable Company's station at Rockport, Mass., is in one of the New York hospitals, where he underwent a successful operation a few days since. His friends will soon, it is expected, have the pleasure of seeing him entirely restored to health.

The heavy weights of the Municipal Electricians are Mr. Frank C. Mason, of Brooklyn, N. Y.; Morris W. Meade, of Pittsburg, Pa.; John W. Aydon, of Wilmington, Del.; Adam Bosch, of Newark, N. J. The work of these gentlemen is reflected in the improved municipal service manifest in all sections of the country to-day. The gentlemen mentioned, it is safe to say, devoted almost their entire leisure time to the interests of their Association.

The dispute was as to the number of words in a market message.

"Will you count 'frogs-legs' as one?" asked the sender.

"No, sir;" answered the receiver, "not unless they were one-legged frogs!"

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Obituary.

Edwin D. Avery, an old-time operator, died at Coldwater, N. Y., October 25.

John J. Tierney, an old time and well-known New York operator, died suddenly October 26.

Samuel Charles Blackwell, of New York, treasurer of the Mexican Telegraph Company, died of paralysis October 27, aged 78 years.

R. J. Murphy, 19 years of age, a telegraph operator at Cleveland, O., died from the effects of an operation for appendicitis, on November 8.

Edward S. Stokes, of New York, who shot and killed "Jim" Fisk, and who was at one time president of the United Lines Telegraph Company, died in this city November 2, in the sixty-second year of his age.

Homer Pingle, formerly superintendent of the Canadian Pacific Telegraph Company at Toronto, Ont., was found in his room with the gas turned on, on October 5, and died soon afterwards. He was born at Markham, Ont., in 1852, and his entire telegraphic career beginning in 1870, was spent in and around Toronto.

Joseph Virag, the celebrated telegraph engineer of Budapest, Hungary, died recently in that city after a short illness, aged 31 years. He was the inventor, in conjunction with Mr. Pollak, of the system of rapid telegraphy known as the Pollak-Virag system, and was a visitor in this country two years ago, where he made many friends.

Lew Wallace Welch, one of the best known telegraphers in the West, and a resident of Milwaukee, Wis., for about six months past, died Nov. 4, of heart trouble. Mr. Wallace was ill but a week. He went to Milwaukee from Chicago, where he was employed by the Western Union in the Tribune office. Since his residence in Milwaukee he was employed by The Associated Press. He leaves a widow and three children. Mr. Welch was 39 years of age.

William Blanchard, who has for the past quarter of a century been operator of the Phelps Printer of the New York and Boston circuit, at both the points named, and who has been a resident of Boston for the past fifteen years, died in that city on October 30, aged 64 years. Mr. Blanchard had a host of friends in the telegraph service all over the country, who will mourn at the sudden taking away of their old and genial friend. The interment was at Milwaukee, Wis.

Omar J. Augé, formerly lieutenant First United States Volunteer Engineers, died in J. Hood Wright Hospital, New York, November 10, from diseases contracted in Porto Rico while in the military service in 1898. He was in the employ of the Central Cable office, 46 Broad street, New York, until too sick to work. He was an exceptionally fine operator and a man of innate refinement and of sterling character. He spoke several languages fluently. Entering the military service as a private he rose through merit alone to be a commissioned officer.

James W. Godfrey, the general manager of the Habirshaw Wire Co., New York, and well known in electrical and telegraph circles throughout the country, was killed November 9 by being thrown from his carriage while on his way home after a drive.

Personal Mention.

Mr. H. J. Pettengill, vice-president of the Michigan Telephone Company, Boston, Mass., has returned from Europe.

Mr. M. M. Dolphin, late president of the Order of Railroad Telegraphers, will make New York City his future home, where he will practice law.

Col. A. B. Chandler, chairman of the Board of the Postal Telegraph-Cable Company, New York, is again at his resk after a sojourn at his country home, at Randolph, Vermont.

Mr. M. H. Redding, assistant superintendent of the Western Union Telegraph Company's central cable office, New York, has been confined to his home for the past two weeks through sickness.

Mr. H. P. Dwight, president and general manager of the Great Northwestern Telegraph Company, Toronto, Ont., has presented ninety-six volumes of standard books to the Muskoka, Canada, cottage sanitarium.

Mr. Ernest Van Every, son of Mr. J. B. Van Every, vice-president and auditor of the Western Union Telegraph Company, New York, who has been confined to his home with typhoid fever for the past eleven weeks, is now convalescing.

Mr. E. B. Baker, of New Haven, Conn., an old time telegrapher, who has been the general superintendent of the Southern New England Telephone Company ever since the company was organized, has tendered his resignation to take effect on May 1, next.

Mr. M. C. Sullivan, the electrical engineer and contractor who has given considerable attention to signal service work, is corporal in the First Signal Corps of the National Guard of New York State. A few days ago he received the championship medal decoration for 1900 for the corps, won by his work ranging from field line construction through the whole line of signal drill and operation.

Pacific Cable Increases Capital.

The Commercial Pacific Cable Company, recently incorporated to operate a cable line between this country and the Philippine Islands, filed with the Secretary of State at Albany, N. Y., on Nov. 8, a certificate of increase of capital from $100,000 to $3,000,000. The stockholders who consent to the increase are John W. Mackay, George G. Ward, Clarence H. Mackay, Edward C. Platt Albert B. Chandler, Albert Beck and William W. Cook.

The cable tolls to the Philippine Islands have been reduced from $2.35 per word to $1.66 to Luzon, and $1.76 to all other islands of the group.

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The Telephone in Railroad Service.*

BY F. P. VALENTINE.

(Concluded from page 449, November 1.)

A long distance line in operation by one of the leading railroad companies of the country, connecting branch exchanges in four cities on its main line, thus breaking the line into three sections, is handling some 250 calls per day very comfortably. It is not thought that the maximum capacity of the line has yet been reached. The operators have been carefully trained in the handling of the calls for the various officials, preference being given to those highest in authority. By discriminating between the various calls asked for, and by intelligent operation, practically instant service is afforded the executive officers, while other calls of importance are handled next, leaving less important business to fill in the time on the wire. To accomplish such results, a system of tickets carefully checked is necessary. These tickets should show time call was received, forwarded, connected and disconnected, with a code record of all attempts made to complete connection, reasons for delays, etc. The facts thus shown are often of value in case of dispute, and, from these tickets, a chart can be readily made showing just what the line is doing at any minute during the day. From such a chart defects in operation can be immediately detected and corrected. With the development of this class of service many problems arise which require careful study, as many of the conditions attaching to public service do not apply to the railroad service.

The development of the long distance feature in railroad telephony has brought out the importance of proper construction of lines. Roads not equipped to construct proper telephone circuits will find it more economical to lease them from the telephone companies, but as their needs increase, they will undoubtedly find it to their advantage to organize a force of experienced telephone men to install and care for these circuits. Against the cost of these lines should be considered the fact that there is a great saving in time effected by this means of communication. In the instance cited of the line handling 250 calls per day, it is estimated that some 10,000 letters and telegrams per month are saved. This cannot but have its effect on all branches of the railroad service.

It is possible with experienced men to build and maintain properly constructed telephone circuits on the right of way of the railroad company, if necessary, running them upon the telegraph poles, but careful attention must be paid to details, or the results will not be satisfactory. Induction from high tension currents will give more or less trouble, but this can usually be overcome by careful transposition of the circuits. At terminals it will be found most economical in the long run to do away with overhead construction and provide a liberal equipment of underground cable, figuring a large surplus capacity for future growth. The maintenance cost of such a plant is small, and in a few years it will pay for itself in the saving in the cost of maintenance over the open wires. It will be found advantageous also, where there is heavy suburban railroad traffic, to extend the cable beyond the terminal limits. In the case of one road doing a heavy four-track suburban business, covering a distance of ten miles from the terminal station, it has been found economical to run a lead covered paper cable on the telegraph poles the entire distance, utilizing the conductors for both telephone service and the various signal circuits between the block towers. In this case it was impossible to find room on the existing pole lines for the necessary number of open wires. It was found possible to install this cable quite economically, as it was run from a work train running at a low rate of speed, the suspension wire having been put up first, and over 1,000 feet per hour run, and that when obliged to give way to one scheduled train each hour.

It is also possible by using cable to elaborate the telephone service by utilizing the dead ends of the circuits terminating at various points, thus affording additional direct connections between towers and points having much intercommunication, simply adding small switches to the telephones and thus relieving the main switchboard of much operation.

The equipment best suited to the needs of the various departments is worthy of some attention. Originally, a desk stand set was considered somewhat of a luxury, but in the case of an official having to answer from thirty to forty calls per day, much time is saved by the telephone being right at hand, instead of his being obliged to leave his desk for the call. Some rather interesting figures have been taken, giving the comparative results of the use of the desk stand as compared with the ordinary wall equipment. In the case of two railroad exchanges connected by a long distance line, one being equipped mostly with wall, and the other with desk stand sets, it was found that it took on an average fifty seconds longer to get the party ready to talk with wall sets than with the desk stands, which, on the number of long distance calls per day, amounted to a loss of one out of six busy hours in the use of the circuit. The rental of the line amounted to several dollars per day, while the cost of proper equipment was but a few cents per day.

In developing a railroad telephone system, uniformity in equipment is essential, as, sooner or later, a large proportion of the telephones will be brought into the general branch exchange system. Private lines are built at different points and, as the circuits from the principal centers are extended, it will be found of advantage to arrange switching connection with these private lines. If uniform equipment is adopted, changes in the instruments will not then be necessary.

To obtain the best results with a system having several hundred miles of wire and several hundred instruments to care for, there should be a properly organized force to make regular and systematic inspections and repairs, and care for instrument and

*Read before the Convention of the Association of Railroad Telegraph Superintendents, at Buffalo, N. Y. June 19, 20, 21.

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line troubles on short notice. This force should be preferably composed of experienced telephone men, as the average telegraph or signal linemen lack the necessary training to produce the best results.

The extension of the branch exchange system is not confined to points on the railroad premises, but direct connections are made from switchboards to the residences of the officials and to the switchboards of other roads, until the larger railroad telephone systems have become an important part of the commercial system of the territory in which they operate. If the residences of the operating officials of the railroad are equipped with telephones and connected either with the public service or direct to the branch exchange, it is possible to immediately notify them out of business hours of any emergency or of accidents, so that they can quickly be on the ground or direct matters from their homes.

A great deal of dissatisfaction with telephone service, resulting in the claims of liability to error in the transmission of messages by telephone, is occasioned by the fact that only about 10 per cent. of the users of telephones know how to talk properly. Telephone users should be taught how to use the instrument and also to express themselves clearly and concisely, as much time is wasted in needless repetition.

It has been found of advantage to utilize stenographers in connection with switchboard operation, that messages may be taken in the absence of the party desired, and on his return can be delivered to him. The use of stenographers and typewriters in connection with railroad telephone service will undoubtedly be developed with the extension of the service, as it is possible for an expert typewriter to take direct from the telephone at a greater speed than from the telegraph.

As the lines are extended, reaching the various junction points and stations, with trunk lines between the boards, and to the various centers, constantly increasing use will make it imperative to furnish only the best class of equipment to give satisfactory service. When the lines have been properly built and equipped, and there is due appreciation of the value of the service to the railroad, the matter of expense in comparison with the results will not be considered in the same light as heretofore.

When railroads have equipped themselves so that they can care for their commercial and domestic office business, the question of train operation by telephone, instead of telegraph, will be settled on its merits, but this should not be attempted until the equipment is sufficient and suitable, and the service is brought up to a standard that will compare favorably with that furnished by the more progressive of the telephone companies. Much of the criticism as to the danger of transmitting train orders by telephone has been justly based on the poorly constructed lines and cheap equipment used by many of the railroads, under the belief that economy in initial cost is the principal thing to be considered.

In itself, the substitution of telephone for telegraph is no more radical a change than took place when reading by sound supplanted the use of the register on the telegraph wires.

It can be predicted that the next few years will see some developments in the application of telephony to railroad service that will surprise some of those whose conservatism has led to the long delay in the appreciation of what seems destined to become the chief means of communication in the future.

Signal Cipher Letters.

C. E. Ross, of Madras, India, in a recent article on cipher codes, recommends the adoption of a cipher containing only three-signal letters. These letters are only eight in number, viz., D, G, K, O, R, S, U, and W, and he thinks that any combination of these letters should be charged for at the rate of eight letters or twenty-four signals to a word. He maintains that there is less chance of error in signaling five three-signal letters, such as DGUKS than in sending an outlandish word of ten leters, such as glorierijk. That may be so; but, while Mr. Ross is reforming, why replace one form of torture to telegraphers for another nearly as bad? What state of mind does he think a telegrapher would be in after reading such words as DGUKS for eight hours at a stretch? No code will be safe to the public, nor fair to the telegrapher which is not compiled or approved of by a practical telegrapher. All codes should contain the vowels, and words should be framed that would be intelligible.—London, England, Electricity.

The First Inventor of Wireless Telegraphy.

Recently there assembled at Dundee, Scotland, a goodly company of men of culture to attend the unveiling of a monument to James Lindsay, an investigator and inventor whose experiments in wireless telegraphy and other scientific advances fifty years ago ought not to be forgotten. Sir William Preece, in unveiling the monument, remarked that Lindsay was long before his time. In 1834 he wrote that houses and towns in a short time would be lighted by electricity instead of gas, and heated by it instead of coal, and machinery would be worked by it instead of steam.

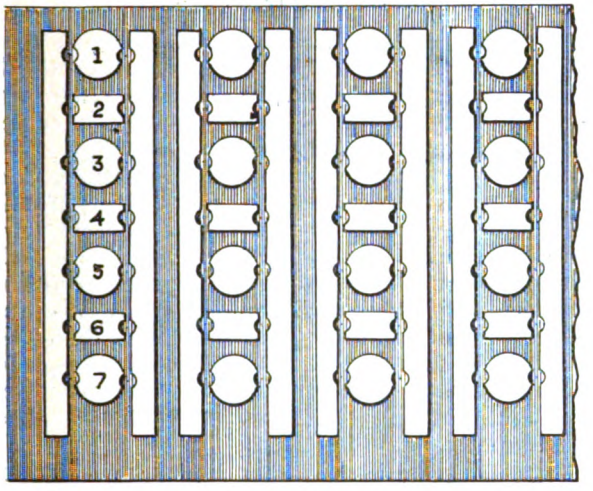
Sir William recollected, says Nature, that while he was attached to the electrical department of the Electric Telegraph Company there came from Dundee to London a man representing Mr. Lindsay with a proposal to dispense with wires and communicate across water. He made all arrangements and conducted all the experiments to illustrate his system in London. Unfortunately, there was really no necessity for the invention in those days, said Mr. Preece. An invention to be of use must come at the proper time. There must be a want for it, otherwise it dies. This accounted for the fact that the system of Lindsay was neglected.

"I have no objection to men wearing bicycle pants while on duty," said the chief operator, "but remember I draw the line at 'short checks.'"

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Improvements in Switchboards.

Mr. J. M. Creamer, manager of the Western Union Telegraph Company at Knoxville, Tenn., has devised and patented an improvement in switchboards that will doubtless recommend itself to all chief operators. On large switchboards it is often most difficult for the eye to follow the line of disks in plugging for cross connections. Mr. Creamer's arrangement of the board, as shown in the diagram, possesses the following merits: The space between



MR. CREAMER'S IMPROVED SWITCHBOARD.

disks is materially increased without enlarging the size of the board, thus very much reducing the chance of arcing between disks, which in these days of strong electric currents arcing is not only possible, but probable. There is no perfect horizontal alignment which the eye can follow on the present style of board. The alignment of the Creamer design of board approaches perfection and appears to be well adapted for rapid and accurate work.

Opposes More Bureaus.

In the annual report of Auditor Castle of the Post Office Department made public a few days since, he devotes some attention to the neglect of attaching a telegraph system to the Department and to similar suggestions, including a life insurance bureau and a postal savings bank. He points out the losses sustained by the postal system in Great Britain and grouping all together he draws these conclusions :

"It does not occur to the promoters of this and other enterprises of State socialism, that failures and disappointments are incident to all kinds of commercial and financial business, that if the Government is to protect all its people against losses by investments, financial, industrial and otherwise, it must practically conduct all the business of the country, guarantee prompt and liberal returns from all classes of investments, and devise some new incomprehensible method of raising funds necessary to pay fat dividends to all citizens, thus making a universally happy, prosperous and contented people."

Zincs and Batteries.

Commercial zinc is not chemically pure, but contains impurities, such as bits of iron, carbon and other substances. When the zinc is immersed in any liquid which attacks the zinc more than the impurities, an e.m.f. is set up; as the two substances are connected through the liquid and also through the metal, local currents ensue which eat away the zinc until the foreign substance is set free and falls away. When the zinc is amalgamated, that is, coated or alloyed with mercury, the mercury seems to cover up the impurities and to bring only the pure zinc to the surface. The smooth surface seems to hold a film of hydrogen when the cell is not at work, and this film seems to protect the zinc from attack when acid is present, and to protect it from local action at all times.

In closed circuit cells it is usually necessary to keep the circuit closed all of the time to prevent injurious action in the cell, as it is harmed more by standing idle than by use. The best known example of a closed circuit cell is the gravity, or "crowfoot" cell, used so largely for telegraph and fire alarm circuits. The zinc electrode is commonly cast in the form of a foot, which gives it the common name. The copper positive plate usually consists of several sheets of copper riveted together and to an insulated wire, which forms the terminal. Crystals of copper sulphate, often called "blue vitriol" or "blue stone," are placed in the bottom and the cell is filled with water. As the cell stands, the copper sulphate dissolves in the water and the solution rises higher and higher until it reaches the zinc, unless the circuit is closed, in which case the zinc is dissolved, forming zinc sulphate at the top of the cell, while copper is deposited from the blue solution upon the copper plates at the bottom. So long as the cell is working, there is more or less distinct division between the two solutions, but if the cell is left on open circuit, the copper solution rises until it comes into contact with the zinc, where the copper deposits and a local action rapidly eats up the zinc and exhausts the solution. As the copper solution is heavier than the zinc, it tends to stay at the bottom of the cell, and gravity keeps the zinc and copper solutions apart when the cell is working. This gives it the name of "gravity cell."—American Electrician.

The Lehigh Valley Railroad Company has issued an order to its train crews requiring that all conversation between them while on duty shall be in English. This is the result of a recent accident caused by the conductor giving an order in "Pennsylvania Dutch," which the brakeman, addressed, misunderstood.

"So young and lost your 'grip.' What a pity," was the tender of sympathy from one key-worker to another.

"Naw," said the young fellow, "I ain't lost no 'grip;' I send with me left so's they'll think I'm an old-timer."

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The Telegraph in Cuba.

There is something of more than usual interest in the report of Captain Otto A. Nesmith, chief signal officer, department of Cuba, which has just been published. The following is an extract from the report:

While the general plan of the telegraph system deemed necessary and as productive of best results had been practically carried to completion, much of it was so hastily constructed, and by force of circumstances necessarily of such temporary character, as to require constant repair, much change of line and reconstruction, and as the country has been opened up by the lines already built, the demand for better means of communication has called for the construction of new and the betterment of old lines during the year.

While the net increase in mileage of lines, including the Cape Maysi telephone line, and deducting length of the old line between Guantanamo and Sagua de Tanamo, has been but 162 miles, making the present mileage 3,418 miles, as against 3,256 of the previous year.

As the list of employees shows, Cubans have superseded Americans and have been employed whenever practicable, until at present over 80 per cent. of the entire force are natives, though the difficulty in obtaining competent operators on the island has continued, and it has been found necessary to secure them from the United States as vacancies occurred, as otherwise the high state of efficiency which has prevailed, and which is required to satisfy the public, could not have been maintained.

The general working of the telegraph service has been exceedingly satisfactory, complaints have been few, and when made, investigations have proved them to be wholly without reason, or of such character as to be incidental to the telegraphic services.

While the term of service of the present chief signal officer has been limited and his time of observation brief, his experience enables him to have the pleasure of commending generally in his official report, the services of the enlisted men and civilian employees, for the efficient and faithful manner in which they have performed their duties.

The World's Telegraph Wires.

The International Telegraph Bureau, at Berne, Switzerland, has recently issued some astonishing figures in regard to the length of telegraph and cable lines the world over. It appears that there are 1,380 government cables, covering 24,097 miles, and 370 cables owned by private companies, which have a length of 198,929 miles, in all an aggregate of 223,836 miles. The longest cable in existence is that from Deolen, near Brest, France, to Cape Cod, Massachusetts, which has a length of 3,674 miles.

The United States has the greatest amount of telegraph wires, there being one mile for every 77 persons. The figures for this country show 212,587 miles of pole lines, representing 1,118,086 miles of wire. The mileage of Europe is 425,600 miles of line and of wire 1,585,267.

Multiplex Telegraphy in France.

What is considered the perfection of multiple telegraphy has just been demonstrated in a series of experiments between Paris and Bordeaux, France. The apparatus is invented by M. Mercadier, one of the head masters of the Paris Polytechnic School. The operators found no difficulty in transmitting on the same wire sixteen messages at the same time and received messages from an equal number of operators without the slightest confusion.

The success of the experiments is so unquestionable that Mougeot, director of the French Post and Telegraph Department, proposes to establish the Mercadier apparatus immediately for the purpose of transmitting to Havre and Brest cablegrams for England and America.

Before the Academy of Sciences M. Mercadier, on October 26, explained his new system. "It is based on the principle of using undulatory currents," he said, "instead of continuous, its well known movements transmitting themselves in undulations that co-exist without destroying one another. Every drawing room illustrates this—the voices of the different talkers, the sounds of a piano and other noises not interfering in the slightest degree because they are undulating as well as pitched in different keys.

"Thus I have used a number of transmitters, each accorded to a different note in the scale, and therefore making a different number of vibrations. The first transmitters were tuned to G, the second to A, etc., each vibration sending a short, sharp current over the wire. A corresponding apparatus is placed at the receiving end, each responding only to the similarly tuned transmitter. In other words, messages fly along amicably and distinctly on a single wire precisely as conversations cross one another in the same room."

M. Mercadier added that his apparatus could be established at any point on a wire and was perfectly capable of sending messages in different directions, the number being limited only by the number of pitches employed.

Magnetic Club.—The regular autumn meeting of the Magnetic Club will be held at the St. Denis Hotel, Broadway and Eleventh street, New York, on Wednesday evening, November 20. Dinner will be served promptly at half past six o'clock.

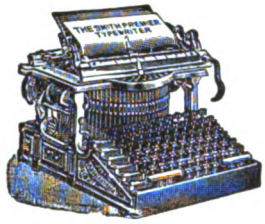
Delegates from various sections of the country to the annual meeting of the Telegraphers' Mutual Benefit Association will be guests on this occasion. An interesting program of entertainment is being arranged. Mr. Thomas F. Clark, vice-president of the Western Union Telegraph Company, will make an address. The president of the club, F. W. Jones, desires the full attendance of members.

"Think you could learn to telegraph in six months, do you?" and there was a heavy trace of irony in his tone as he added, "See here, it was nearer sixty years before Prof. Morse himself could telegraph!"

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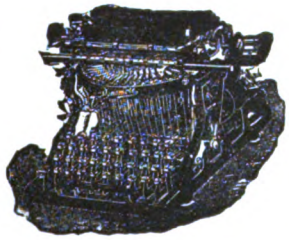
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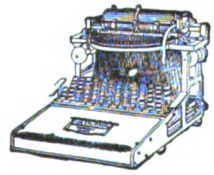


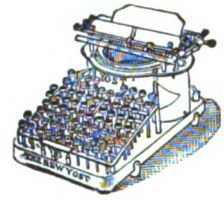
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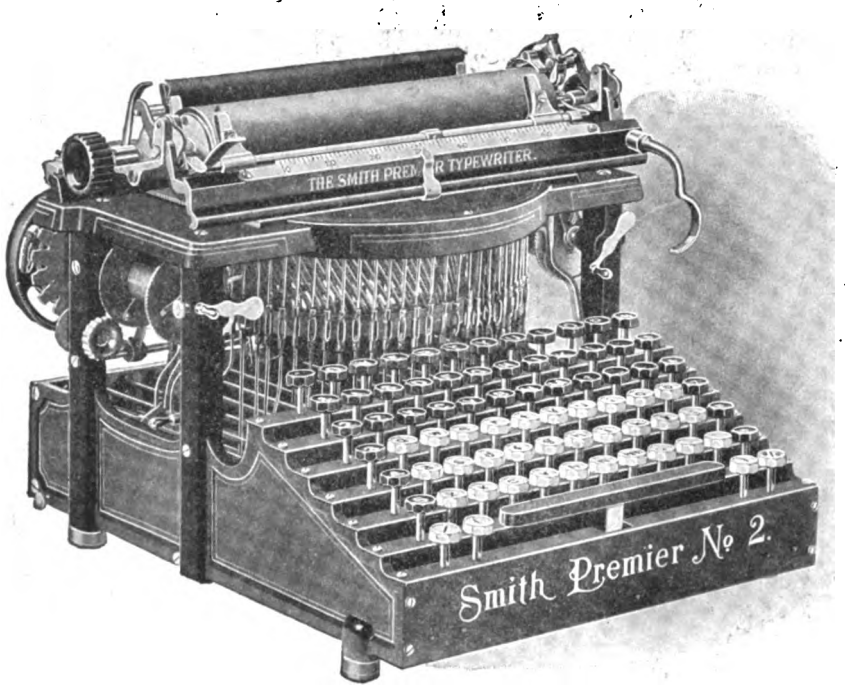
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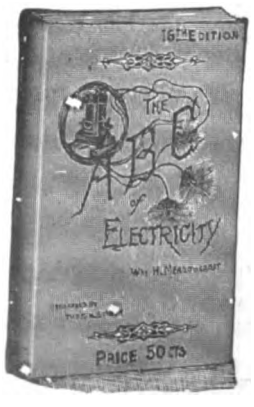
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NEW YORK, November 16, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

Losses Through the Post Office.

Postmaster Van Cott has recently been in receipt of numerous letters of complaint from all sections of the country reporting the loss of mail matter passing through the New York post office. So serious had the matter become that a watch of detectives was set, which resulted in the arrest, on October 30 last, of Thomas Barry, a post office clerk, in whose possession several hundred stolen letters were found. Men like Barry, who have had fifteen or twenty years' experience in handling letters, learn to know almost intuitively whether an envelope contains money or not.

The arrest of Barry probably explains the mail losses, to which Telegraph Age, especially of late, has been subjected. This thieving had apparently extended from letters to books, for it had become a matter of common occurrence for books which are mailed in the New York post office, to fail to reach their destination, and all trace of them to disappear. The inference is that they did not leave the post office in which they had been deposited, at all. In consequence of these losses we have been compelled to utilize, to a large extent, the responsible services of the express companies in the transportation of our book mail matter, rather than to trust to the custody of the post office department which repudiates all distinct responsibility in case of loss.

People doing business with Telegraph Age, and using the mails for money transmission, should never, under any circumstances, place bills or change loosely in a letter. Experience has repeatedly proved that it is not a safe way to send it. The standing notice at the top of the first column of the editorial page, calling attention to this matter, seems frequently to escape attention, for oftentimes we are advised that money has been sent in this careless manner. Such methods are unbusinesslike, and if persisted in must be in all cases at the risk of the sender. A few cents will purchase either a post office or an express money order, thus guaranteeing absolute safety of the amount involved, for, in such cases, if lost or stolen, the post office or express companies, will reissue an order.

Pensions for Telegraphers.

At the meeting of the Old Time Telegraphers' and Historical Association, held in Montreal, Que., on September 11, the proposition to establish a home in Colorado for indigent telegraphers, which has so long engaged the attention of the fraternity, was declared to be impracticable. The project was made the topic of considerable debate and it was made manifest that those who favored the plan of a home were, after all, but few in number, and even these evinced but little enthusiasm in its advocacy. They were not sure of their proposition.

As all of the available time allotted at the convention for discussion was absorbed by this single phase of the subject, no opportunity was afforded to consider the proposition of Mr. Andrew Carnegie, who last February wrote to Mr. W. C. Connolly, agent of The Associated Press at Pittsburg, Pa., favoring the idea of a pension fund for telegraphers, rather than a home, and declaring himself ready to contribute a sum as a nucleus of such a fund. Mr. Connolly is a personal friend of Mr. Carnegie, and the letter received by him was in response to one he wrote asking Mr.

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Carnegie whether he was willing to contribute to the support of a home for telegraphers. The letter is as follows:

5 West 51st Street.
New York, Feb. 13, 1901.

Mr. W. C. Connolly, Jr., Pittsburg, Pa.:

Dear Mr. Connolly:—Yours of January 14 is before me this morning. I have known several "Homes for the Aged" of specified classes that amounted to little or nothing, from Bulwer's "Home for Decayed Authors," down. Old men will not leave home and all its associations to live in a distant place. Would it not be better to have a pension fund for telegraphers, who are aged and invalid? I do not see why the Pennsylvania Railroad system should not be introduced: the railroad pays half and the employees about half, and this takes away from it the element of charity. Men enjoying the pensions are really using what they themselves have contributed. If the Telegraphers' Association would get up a scheme like that, I should be glad to give a sum as a nucleus.

I feel very warmly toward my old associates, and should be glad to give a considerable sum, provided the pension scheme could be made available. My opinion is that this would do far more good than your proposed home away out in Arkansas.

Very truly yours,
ANDREW CARNEGIE.

P. S.—The telegraph companies would also contribute, I think, as the Baltimore and Ohio and Pennsylvania Railroads do. Please let me know how the idea strikes you.

The pension fund has been the favored plan held by many of the telegraph people, including officials of the companies, who never, it should be said, have approved of the establishment of a home for indigent telegraphers. While, as we have stated, a preference for the pension fund has been expressed, it has not yet been made plain just how a scheme of this magnitude can be successfully inaugurated and carried out. It is a highly complex subject, and its solution will call for a profound study of the situation. The telegraph profession is made up of men and women who are constantly changing their positions from one company to another, and just how to keep track of all telegraph employees of all companies, including the press associations, and perhaps the railroads as well, is not a subject that can be disposed of as an ordinary business transaction. However, now that the letter of Mr. Carnegie, embodying his ideas, has been published, it is possible that some of our readers may be able to offer some satisfactory solution of the proposition under advisement; and from any who have given the matter careful and mature thought we shall be pleased to hear and invite correspondence. The time for action in this important matter, so vitally affecting the welfare of all telegraphers, is evidently at hand, and the need of an energetic and well considered movement in the direction indicated, should be apparent.

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A Mysterious Call.

BY MARY AGNES BYRNE.

"Now girls we will set the table for thirteen and await the coming of our future fates who will appear at midnight and take seats at it," announced Caddie, carefully locking the door after good-byes had been said to several guests who left to catch the last train cityward.

The evening had been spent in merry hallowe'en games and Caddie's words referred to a certain charm which she and two young lady visitors had agreed to try, keeping their intention a profound secret from the others.

"I imagine that Eleanor's 'spook' will resemble Will Seaford," she continued, as they all three proceeded to the dining room.

"You are a very imaginative young woman, fair Mistress Fred Winslow," returned Eleanor, "but say, what think you of Cecil's conquest—Mr. Horace Lesley?"

"Nonsense, girls! Mr. Lesley drew the thimble in the cake—the sure badge of bachelorhood," protested Cecil. "But when I saw him trying to fit it on your finger shortly afterwards I thought he was in a hurry to get the job of mending off his hands," retorted Caddie demurely.

Amid this airy badinage the table was extended and plates arranged for the unlucky number; all the lights were extinguished except two candles which, placed on the table, one at each end, shed a ghastly glow that failed to penetrate beyond the table, leaving the corners of the room in darkness.

"Coffins stood round like open presses, showing the dead in their last dresses," Cecil quoted pointing to the white lace draperies of the windows which loomed against the wall like stately ghosts, while they and the two pale lights on the table were reflected in a mirror opposite.

"I declare, I'm getting nervous," said Eleanor in a half whisper as she cuddled closely to Cecil who sat beside her on the lounge. Caddie's restless nature kept her flitting around from the table to the mirror, from there to the windows and then back to her friends.

"Do sit down, or you'll keep them from coming," Cecil entreated warningly.

"I'm only afraid they will come," murmured Eleanor.

"And I'm afraid they won't," returned Caddie flippantly, "so we'll all be left in single blessedness."

"As there are three of us, you might call it triple forlornness," remarked Cecil with a yawn, taking out her watch. "It's 11.55 now, and if they're not here in exactly five minutes I'll go to bed!"

"Hark, don't you hear that noise?" cried Caddie a minute later, pausing in front of them.

"Like creeping footsteps?" "Yes!" returned Cecil, and Eleanor whispered tearfully "I wish, Oh, I wish we never tried this!"

They sat in silence, holding tightly to each other, feeling decidedly frightened and echoing Eleanor's wish.

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The old-fashioned clock in the hall began to strike; it had a funeral tone; at each stroke their hearts beat more nervously. One—two—three—up to twelve, and as the last stroke fell on the air telling the mystic midnight hour the door leading into the hall opened slowly, the draught causing one of the candles to flicker and go out, while into the room came a tall figure all arrayed in white flowing garments, then came another, followed by a third. Slowly, solemnly they glided along, they seemed to the terrified girls to be treading on air, so noiseless were their movements; their figures appeared giant-like in the semi-darkness. They advanced to the table and gravely took chairs. All this occurred in a few moments, though apparently an age to the onlookers. Then arose a shriek from Eleanor which partly revived her half-paralyzed friends. Caddie jumped to her feet, seized a pitcher half filled with lemonade from off the mantel and dextrously emptied it over the three ghosts. In a moment all was confusion; the girls watched in amazement as the phantoms bounced from their chairs in the most undignified manner—a comical contrast to their former solemn mien—throwing their damp robes from off them—and a familiar voice exclaimed, "Great Cæsar, she almost drowned me!"

Cecil's blood, which had frozen in her veins, resumed its normal condition; she broke from Eleanor's detaining clasp, hastily lit the lamp and turned to confront the uninvited guests toward whom Caddie was directing a flood of reproaches.

There they stood partly divested of their grave-like habiliments, three very much alive young men, the three whose names had figured in the girls' conversation a short time before—their faces wreathed in smiles and their hair and mustaches showing traces of Caddie's onslaught.

"Will Seaford, how could you, O, how could you!" wailed Eleanor who reclined amongst the cushions on the verge of tears.

He started to approach her, his draperies still hanging picturesquely around him, but she waved him away and buried her face until to reassure her he was obliged to discard his phantom attire.

"I'll never forgive them, never," Cecil said to herself, but she changed her mind later when her disapproving glance met the amused light in Horace Lesley's eyes.

"'Angels and ministers of grace defend us,'" cried Fred emphasizing the first word with a sweeping bow to the young women, at the same time trying to find a pin which fastened the sheet around his neck; he looked imploringly to Caddie for assistance, but found it not.

"You turned the tables nicely on us," remarked Horace, fishing a piece of lemon peel out of his collar.

"Turned a cataract on us you mean," said Will who, seated at Miss Eleanor's side, was feeling happy in having won a smile from her.

Then an explanation was in order. It seems that the girls' plot had been overheard by a young man who jokingly mentioned it to Fred; that was enough; he and his two friends arranged to remain over night at the town hotel, and the aid of Caddie's mother was invoked to help their plan along. She it was who let them in silently through the kitchen where a supply of sheets was ready in which they hastily enveloped themselves and waited patiently for the midnight hour to strike.

They sat around the smouldering fire in the parlor for an hour or more, Eleanor's hand clasped in Will's under cover of a friendly cushion; Horace in a chair tilted back against the wall where he could watch Cecil sitting arm in arm with Caddie, while Fred lounged on the rug at their feet.

Their talk turned from their late escapade to tales of witchcraft, ghosts and goblins, and Horace related a story that had come under his own observation which bordered on the marvelous and unexplainable.

"But first tell Caddie the first verse and the last, or she won't enjoy it—that's the way she reads stories," said Fred, sotto voce. He was effectually silenced by that young lady throwing a tidy around his head completely covering his mouth; he lay panting and smothering, while Caddie unmindful gave all her attention to the raconteur.

"When I entered on my career as train runner about five years ago I worked for the B. and L. in their main office at B——. Besides myself there were five other dispatchers as jolly and good natured a set to work with as one could wish. But there was one man, Orin Gregory by name, who was quite a mystery, he alone never talked of himself nor spoke of having any friends, nor ever joined in any fun with the rest, more from constitutional reserve, I think, than because he disapproved of our boyish antics, he kept on at his work seemingly unconscious of everything else. He was a first class workman and had the reputation among railroad people of being the finest dispatcher on the road. Always right on time going to duty and, unlike the rest of us who often glanced at the clock near quitting time, he became so interested in his work that I am sure he would often have worked for hours after time if not notified by his 'relief.' In times of wreck and delays he knew just what to do; we all relied on his advice; with him it seemed to be a natural talent to do train work well. Besides, he had an unlimited fund of general information; we all went to him for answers to questions no one else could solve; as for electricity, of which we all had a smattering picked up at our work, he had studied it thoroughly, but he never made a display of his knowledge; it was only in the course of years of work together that we found out all this. His appearance—of course you ladies would ask that question—I don't think you would call him handsome; he was tall and rather thin, but carried himself with an air of unmindfulness of what was going on around him that would attract attention, for the rest he had a fine forehead and deepset, thoughtful eyes, very dark hair and pallid complexion.

Though Gregory treated us all in this polite, indifferent way, there was one person of whom he made an exception—Irma Carleton—a clerk in the office—a little wild rose of a maid with limpid blue

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eyes and sunny tresses. She was quite at home among us, took our teasing good humoredly and was always ready to oblige; she had won our good will, in fact, some of the boys were half in love with her—to her Gregory unbent in a surprising manner. From the first we remarked the great interest he took in Irma. Finding her anxious to learn telegraphy he helped her in every way and finally secured her the office in her home town, an unimportant station called Silverton, about sixty miles out the road, where she could board with her widowed mother. We were inclined to joke old Gregory—that's what we called him, his forty years seemed patriarchal to our twenty-five—on his infatuation, but he was not easy to jest with, he would put it off with "in love with that child!" She was only seventeen. She seemed to think the world of Gregory "as an elder brother;" she was careful to explain but once when he undertook to chide her in a brotherly way about receiving the attentions of a certain fellow who had the reputation of being wild, she resented either his interference or his brotherly tone; perhaps she didn't want to be a sister to him; anyway, there had since been a decided frost between them, they didn't even say "Good morning" over the wire.

I suppose you are wondering where the strange part of my story comes in, and now I'll enlighten you.

(To be continued.)

Nature's Revenge for Overwork.

On my first Monday in town, says a well known writer, I sent in my card to Hon. John A. McCall, of the New York Life. Finding him in, I expressed my surprise that he had come up from beautiful old Monmouth country on such a fine day.

"I do go down every Saturday," said he, "and come back on Monday. You will be surprised to find how much the English custom of taking week-end holiday is being followed here, and it is a good thing, too. It gives us a change and puts ozone in our lungs and fresh blood in our veins."

Then this man of vast and complex affairs went on to say that for his own part he had systematized his duties and surrounded himself with the best assistance obtainable in order not to wear out too quickly at the great and consuming game of business. I admired his shrewdness and the genius he has for obtaining able helpers and then winning their enthusiasm. But a large part of his best stock in trade came to him in his blood, and for it he must thank his parents and the racy soil of their native land. I refer to his irrepressible and bounding humor and wit. A real wit like Mr. McCall must certainly enjoy his own sallies and conceits so that such a man has the constant refreshment of the fun within himself as well as the wit and humor of his friends and his books. I had a long visit with him and came away feeling fresher and younger for having been with a man able to see the bright side of all things and so equipped as to serve up the weightiest matters lightened with the appetizing salt of fun and brightened by sharp wit.

And how wise is Mr. McCall to resolve not to burn himself up in the furnace of New York's commercial energy; to see that a man of great responsibility has the option of staggering only a short distance under a back-breaking load or springing forward on a far journey with only what he can carry surely and safely. I am no old man, yet how many of my fellow New Yorkers have I seen attempt the other course and fall by the wayside in what should have been the days of their prime.

Wasn't it Mr. Rutter, of the New York Central, who had a cot set up in his office that he might work at night until he was only able to stagger a few feet to his bed? William Orton, a former president of the Western Union Telegraph Company, not satisfied to trust details to lesser men or content with an ordinary day's work, used to work long after the others had gone home, and then take what he could of his papers and documents in a green bag to his home, there to complete the rapid demolition of his powers and life. It is needless to say that he died suddenly. Those who ventured the assertion at the time that Orton's place never could be filled were later compelled to acknowledge that his successor, although he did not work half the number of hours, was the better official of the two.

Mr. Hyde, of the Equitable Life, a giant of enterprise and a mammoth for work, may be said never to have freed his mind from cares and serious thoughts until offended nature had her revenge. But why prolong a list innumerable? Joseph H. Choate came very near to killing himself with hard work, and grew to show the burning scars of overheated energy in his face. But he seems to have taken alarm, and not only has he moored his craft in a reasonably placid harbor, but not long ago, when a Cabinet position was dangled before his eyes like a glittering ball of gold, he said: "I will never work hard again."

Old Time Telegraphers' and Historical Association.

Mr. G. H. Corse, of Ogden, Utah, president of the Old Time Telegraphers' and Historical Association, has appointed the following named gentlemen members of the Executive Committee of the Association: L. L. Downing, agent of the Chicago, Milwaukee and St. Paul Railroad, Salt Lake City, Utah; J. B. Twiford, manager Western Union Telegraph Company; E. T. Hulaniski, lawyer; G. W. Jones, broker, and W. J. Shealy, secretary and auditor of the Ogden Union Railway and Depot Company, all of Ogden, Utah. All are energetic and enthusiastic men, and will doubtless do their best to make the first reunion beyond the Rocky Mountains a success.

The telegraphone is a device invented by Valdemar Poulsen, a Danish electrician, which automatically records sound transmitted by telephone. As its name implies, it is a combination of the telegraph, the telephone and the graphophone or phonograph, and its successful operation has astounded the scientific world.

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When the Telegraph Came to California.

BY JAMES GAMBLE.

[Mr. James Gamble holds the distinguished honor of having been the first manager and superintendent of the first telegraph line built in California. He also occupied the same position when later the great transcontinental line was constructed.

In the beginning the position of manager meant active service in the field and not chair and desk duty in an office. Mr. Gamble had direct charge of the party that stretched the first wires in California. Many a night he slept on the "soft side of a plank" after having worked from dawn until dark, but he got the California line up and in working order between San Francisco, San Jose, Stockton, Sacramento and Marysville in the incredibly short time of six weeks and saved a valuable franchise for his company as well. That was in 1853.



JAMES GAMBLE.

In 1861 he had control of the building of the transcontinental line between Carson City and Salt Lake that connected the Golden West with the Far East and bound California by cords of steel to the heart of the Union. This work was commenced on the 27th of May, 1861, and on the 24th of October of the same year, barely five months later, the first message was clicked over the wire. This was California's first step in the remarkable growth that she has since attained.

Mr. Gamble has written especially for the San Francisco Call an account of the building of these two lines that laid the cornerstone of the prosperity of that State. What he has to say is not merely interesting as a recital of adventure and enterprise, but, coming from such a source, it is telegraphic history pure and simple.]

Probably no line of the same length in the world made so much money as the old California State Telegraph Company, nor was any line of so much practical utility as the first wire stretched across the continent. I had the honor to assist in the making of both.

It was in 1852 that Messrs. Allen and Burnham obtained from the Legislature of California a franchise giving them the right to operate a line between San Francisco and Marysville, via San Jose, Stockton and Sacramento, for a term of fifteen years. For the right to be exclusive it was necessary that the line should be completed by the first of November, 1853.

W. B. Ransom was appointed superintendent and W. M. Rockwell, for many years after a prominent hardware merchant of San Francisco, had the contract for the construction of the line.

I had just returned to Sacramento from the mines and by accident met Mr. Ransom. He learned from my conversation that I was a practical telegrapher and asked me to take charge of the men employed to string the wires. It was to be a rush job from the start, for the first of November was not far away and unless the line was in operation by that time the franchise would not hold good.

I found the pole-setters were already many miles in advance and there was no time to be lost. There were five men in my party besides myself. Our means of transportation consisted of the running gear of a wagon on which were placed loose boards enough to hold our meager outfit—a coffee-pot, small sheet-iron boiler, tin plates, tin cups, knives, forks and blankets. This wagon served the further purpose of carrying the reel and running out the wire.

It was then the 23d of September, 1853. In less than six weeks we must have completed and in operation over two hundred miles of line. It was high pressure work right from the start.

On the first day we strung up about three miles of wire. The next day we commenced at daylight, worked until dark and managed to get six miles more in good shape. So interested had we been in our labors that as night closed in we found we were lost. We had no tent with us and during the day having noticed a squatter's cabin had decided to pass the night with him. A heavy fog rolled in with the darkness and the cabin had disappeared as if by magic. After seeking for it in vain we gave up the search and set about to prepare supper. Then it was that one of the party in hunting for firewood stumbled right on the cabin that had been almost under our noses all the time. That cabin was one of the brightest spots in all those six weeks of hard work.

At that time there was no eight-hour law, and as our beds were generally made on "the soft side of a plank" it was almost easier to work than to sleep. We sent the line along at the good rate of from five to seven miles a day. On the fifth day out we had reached a point near what is now Belmont, and the site of what was afterward noted as the Ralston mansion.

Here the first attempt was successfully made to open up communication by telegraph with San Francsico. On testing the line I found a good current coming from the San Francisco batteries.

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I connected my instruments and placed myself in direct communication with that office, then located in the Old City Hall, which is now replaced by the Hall of Justice.

This was the first message ever transmitted on the Pacific Coast over a telegraph line.

After this the line was used every night to report the progress of work.

The native population were wonder-struck and overwhelmed with curiosity at the construction of the line. They examined the poles, looked at the wire, and then the wise heads, after noting the cross-trees, decided that the inventive Yankees were fencing in the whole country with crosses to keep the devil out.

Finally we reached San Jose and there established the first regular station. The office was fitted up the day after our arrival, and I soon had it prepared for business. The word was passed around by the natives that something remarkable was going on and the street was soon filled with open-mouthed miracle-seekers.

The day was so hot that all the windows of the office were open, and of course every one of them was street deep with awe-inspired observers. Noticing the sea of heads curiously expectant, I purposely acted as mysteriously as possible. Every time the instrument clicked there was a hushed buzz of concentrated wonder. I had just received the first message from San Francisco, copied it and placed it in an envelope. On seeing me do this my audience thought that I was preparing a message on magic paper and getting ready to presto change it by the spirits of the wire to San Francisco.

Instead of giving the telegram to the boy for delivery I purposely took it with a great gesticulation and held it under the table out of sight. Then I assumed a theatrical pose, stared at the wire overhead, waved with my right hand and began to work the key.

The buzz at the window increased to a murmur and then passed to an excited roar from those who could not see, but knew that the spirits were about to work. In a second the crowd knew as one man that a yellow envelope with the message was about to be sent over the wire. Only an instant and the windows were vacant—everybody was tumbling over his neighbor to get a look at the phenomenon of a yellow envelope flying over the wires that left the side of the building.

There was an expectant hush. Then somebody yelled:

"There she goes!"

"No, she didn't, I've had my eye on that wire for ten minutes."

"It's a fraud!"

"It's bogus!"

A second of silence and the burst of laughter from the inside of the office told them that there was a joke somewhere, and the show was either over or had not begun.

As they had failed to see the message pass along the wire their second supposition was that the wire must be hollow and the envelope had been rolled up under the table and shot through to San Francisco. Everybody wanted to look at the end of the wire, and after finding that their second guess was wrong they gave it up.

There was only one solution. The telegraph was an enchanted spirit of some kind. I was a wizard. The whole thing was uncanny. It might blow up at any minute, and the best thing to do was to keep away from something that no one could understand and no one could explain.

This was California in 1853.

After finishing at San Jose we made arrangements to push the work on to Stockton. I found that the wire for this next run was larger than that used before and would not work so well on our reel. The first day we were able to make only three miles, and I decided to return to San Jose and have some alterations made in the mechanical part of our wagon. That night we had stopped at the house of a farmer who had left the Eastern States before the advent of the telegraph. He was very much taken with the possibilities of telegraphy and would like to believe in it, but according to his mind it was impossible and that was all there was about it. To convince him I clicked off a message to the operator in San Jose. That settled it. No sane man could be made to believe that anybody could read the taps of a little iron bar like that, and according to his mind I must have a great imagination and small conscience.

I told him that I had just asked the San Jose man to expect me in the morning and be ready to repair the machinery. The farmer was very polite, but he intimated that he had a wagon load of watermelons to back up his opinion that the operator would know nothing about my coming until I rode up in front of the office the next day.

Watermelons at that time were one dollar each and the days were very warm. The temptation was too great.

I said that not only would the operator be expecting us, but I should wire him to meet us at the door with the question, "Where are the watermelons?"

My agreement to do this increased the interest of my rancher friend, and with true California hospitality he turned over his house to us. After a fine breakfast he hitched up his best pair of horses and away we went for San Jose. I felt as if I were robbing the man, but watermelons on a hot day are an elegant conscience salve.

I thought he would fall out of the wagon when we reached the door of the office and there was the operator excitedly shouting:

"Where are those watermelons? Where are those watermelons?"

I made up the disgrace of "betting on a sure thing" by explaining all the mysteries of the telegraph to him, and he enthusiastically decided that he would give a wagon load of melons every day if he could lose bets on new inventions as great as that one.

In the meantime and while my party was working toward the north, L. L. Baker, later of the firm of Baker & Hamilton, had charge of the wiring

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party working from Marysville south. We saved the franchise by six days, for the line was completed and in operation by the 25th of October. This won for the company the exclusive right of telegraphing for fifteen years from the date of the completion of the line—and a most valuable concession it was.

The opening of that line placed all the large cities of California in direct communication, and as money was plentiful and time valuable the telegraph was largely made use of.

The tariff between San Francisco and San Jose was 75 cents for ten words and 25 cents for every additional five words or fraction thereof. From San Francisco to Stockton, Sacramento and Marysville the rate was $2 per ten words. Still no complaint was made by the public that the rates were too high. To them the line was a luxury at any price.

(To be continued.)

Funny Blunders in English Newspapers.

Accidents will happen in the best regulated families, and blunders will creep into even the most carefully edited paper, says the New York Press, but the English seem to excel in making amusing newspaper mistakes. An Englishman is always funniest when he doesn't try to be.

A Newcastle paper, in giving an account of an inquest recently, declared that "Richard Wilkinson, one of the deceased, repeated the evidence given by him at the inquest," and a woman's paper of London is authority for the statement that "On her deathbed, and even after death, the Empress Frederick showed her preference for everything English."

In speaking of the naval manœuvres a London paper declared that "The Devenport instructional flotilla left yesterday to carry out their program already carried out," and another paper records the startling fact that "The Long Sutton School Board has arranged to grant the scholars attending the schools seven weeks' holiday this month, so that the children can work in the potato fields."

Another paper states that "The late William Carr, who was the highly esteemed clerk of Waltham Abbey for eighty-five years, passed to his rest at the ripe age of 79."

"Electricity Made Simple" is the title of a 233 page book; paper binding, 50 cents; cloth binding, $1. The author, Mr. Clark C. Haskins, of Chicago, is an old-time telegrapher, but has been engaged as an electrical expert for the past twenty-five years in the various branches of electricity.

This little work is not intended for the instruction of experts, nor as a guide for professors. The endeavor has been throughout the book to bring the matter down to the level of those whose opportunities for gaining information on the branches treated have been limited.

Those desiring copies of this useful work may obtain the same by remitting price to J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

General Greely's Report.

Brigadier-General A. W. Greely, chief signal officer, in his annual report recommends an international cable conference to prepare regulations for ocean cables. Concerning the proposed Pacific cable, he says:

"It is only a matter of time when Luzon shall be connected with Japan and Tonkin and the Chinese empire. The Philippine Islands are now only accessible telegraphically over a short cable of about 600 miles of the Eastern Extension Company, between Manila and Hong Kong.

"The experiences of the War Department in connection with the relief of the legation at Pekin show clearly the tremendous disadvantage under which the United States would labor without its own cable facilities in case of an extended war in the East.

"An American transpacific cable is a military and commercial necessity if American interests are to be safeguarded in Asiatic regions. Such a cable, while of great value militarily, will especially foster industrial interests and facilitate commercial operations.

"As is officially known that an American cable can only enter Japan from the East and not from Russia, China nor the Philippines, the only possible route is that already recommended to Congress by the President, via Hawaii and Guam."

Concerning the signal work of the army, he says:

"The operations of the signal corps have been coexistent with the operations of the army of the United States, not theoretically, but on broad lines and activities which have comprised practically the entire area, not only of the United States proper, but also of Alaska, Cuba, Porto Rico, the Philippines, and a portion of China. The corps should be increased to meet present demands.

"There have been constructed 336 miles of telegraph line in Alaska, and arrangements have been made with the Canadian government to use its line to Alaska.

"The signal corps operates 3,418 miles of telegraph in Cuba, an increase of 162 miles during the year.

"The operations of the corps in the Philippines have been very extensive, there being 4,801 miles of telegraph line, an increase of 2,054 during the year. The military cable lines in the Philippines connects Manila with Mindoro, Marinduque, Masbate, Samar, Leyte, Cebu, Negros, Mindanao, Jolo and Siasi.

"If the officers and men of the signal corps had struggled only against the natural disadvantages they were under their work in the Philippines would have commanded commendation; but to this must be added the extreme difficulties arising from the practically constant efforts of the insurgents to destroy indispensable means of intercommunication. In the region southeast of Laguna de Bay, Santa Cruz to Antimonan and thence to the head of the Gulf of Ragay, the insurgent troops had caused no end of trouble and annoyance, not only by the cutting of the wire, but by the removal or destruction of considerable stretches

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of line. The commanding officer at Santa Cruz informed me that experience had caused him to furnish every repair party with at least a mile of wire, as nearly that amount was taken away at each break. Destruction of sections of two, three and even five miles of line was not unusual, but the climax was reached in the total destruction of thirty-eight miles of line, every insulator being broken, every bracket destroyed or removed, every pole cut down and the entire wire carried away.

"In wireless telegraphy the signal corps has perfected its own system, which was the first one ever successfully operated in the United States, on September 30, 1899, between Fire Island and Fire Island Lightship, a distance of ten miles. There are now in successful operation two stations in San Francisco harbor, one at Fort Mason and another at Alcatraz Island. Arrangements have been made for the establishment of stations in the Philippines at suitable points. The chief signal officer adheres to the opinion that this system has its limitations, which are not entirely dependent on distance."

Wanted, an "Ancer" at Once.

The chief operator of one of the large offices recently found in his mail the following application for a position as a telegraph operator on his staff. The date and signature are, of course, omitted:

The western union Telegraph compinna

Der sur, Theas fieu lines, are for to ask if I may get a job from you all in some office as a helpor if so pleas ancer this at once. I have been studying telegaphy for some time, and takin lessons from ——— The opparator at this place and I hav instraments and can send teen words all write and proboly moor. But I cant receeve moor than five or teen words as I havent had no one to practice with, and I am in school now. I would be glad to get a job if posibull.

And I have been living at this place for four years and if you want a ricamendation from me pleas let me no at once and I will do so?

My age is 19. I way one hundred and sixty pounds. My ocupation beefore I beegan school wos farring in the barbor room and I takin up telagephy thinking I would probly like it bettor.

pleas ancer this at once and give all infimations,

your friend."

International Association of Municipal Electricians.

Mr. Frank P. Foster, of Corning, N. Y., the Secretary of the International Association of Municipal Electricians, has issued the following circular, which he is mailing to all sections of the country:

"The International Association of Municipal Electricians has been in existence for six years, and is composed of men who have the care of the electrical interest in cities, with regard to both municipal ownership and the supervision of franchise rights. For this reason we believe we can be of great benefit to you and your municipality, in handling the many questions coming under our supervision; also you can be of use to us in the consideration of them. Our advantages are certainly in united action, particularly with regard to such matters as are under State control, and are brought about by acts of legislatures; also with regard to securing the experiences of others in the handling of the many problems connected with the electrical control of streets and care of public property, including fire and police protection, thus avoiding the danger of experimenting which would tend to weaken our standing in the eyes of the public. Cities can be greatly benefited by uniform laws and rules, and uniformity among state laws will undoubtedly facilitate our work.

"For this reason we request that you suggest subjects for our next meeting, possibly those that would be of most interest to your city, and then be present at the meeting to discuss them. If you are not a member, we ask you to join not later than the date of the next meeting. These subjects will be assigned to their authors not later than January, and your suggestions should be in the hands of the Secretary by November 25. The annual dues are $5.00 per year and the next meeting will be held in Richmond, Va."

Large Switchboard in Cortlandt Street Exchange.

The Cortlandt street exchange of the New York Telephone Company was "cut-over" from the magneto to the new common-battery system on Saturday, November 2. A total of about 9,300 subscribers' lines were transferred in two hours. The newly installed switchboard is said to be the largest in the United States. It is 256 feet long and is shaped like a horseshoe. During weekdays 246 operators are required to attend to the wants of the 9,300 subscribers whose lines terminate in this exchange. The board is provided with 1,000 incoming and 840 outgoing trunk lines. Adjoining the switchboard room are a handsomely appointed parlor and reading room, a locker room for the street clothes of the operators, a dining room and a hospital. The New York Telephone Company began putting in the new system in its various exchanges in 1898 and the Cortlandt street exchange was the last to give up the old "drop" system.

"The Crisis," the most popular book of recent years, being read everywhere, the demand for it frequently exceeding the supply, not only presents a magnificently written story of absorbing interest, but at the same time, and delightfully interwoven with it, gives one of the most truthful, because unprejudiced, dramatic and fascinating histories of the Civil War yet produced.

Orders for this famous work, accompanied by express or money order for $1.50, will be filled, express charges prepaid, on the day of receipt, by addressing John B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

"'Figures won't lie,' you know," vouchsafed a man who was talking about his own ability to "send."

"No," retorted a listener, "but 'Truth is stranger than fiction,' when it come to figuring on a 'bonus' wire!"

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Comparative Merits of Telegraphy and Telephony for Railroad Service.

A paper on "Telegraphy" was read by D. McNicol at the September meeting of the Northwest Railway Club, in which some reasons were given why the Morse telegraph is preferable for railroad work instead of the telephone in the United States and why it promises to continue so.

The telephone has been in constant use for 25 years, but has been little used by the railroads, except at terminals. This is due partly to the fact that all business sent by telegraph necessarily goes on record, but more perhaps because a railroad officer can send ten telegrams in much less time than he can hold ten different conversations. Again, a wire will transmit 400 messages a day more by telegraph than by telephone. Superintendent and telegraph superintendents continue very cautious about using the telephone for train orders. On roads of heavy traffic and high speed the train dispatcher must be able to communicate quickly with any and every station, and he needs a trained person at each station. Therefore the telephone would be about as costly as the telegraph. The equipment of a telephone line costs much more than that of a telegraph line.

The automatic and printing telegraphs have not yet made any improvement on the Morse. The Wheatstone automatic appears to be losing ground, even in England. The advent of the typewriter has enabled the Morse telegraph to deliver messages in as good shape as automatic telegraphs, with less complicated and less expensive apparatus. Wireless telegraphy has made progress, but its sphere is limited because the speed of transmission is very slow; at all events, its field will not conflict with that of the ordinary telegraph.

The Morse being still at the head, the telegraph engineer should aim to perfect it. The greatest obstacles to perfect service with lines on poles are the weather conditions. The remedy for this is to put the wires underground, and this would seem to be the next great improvement to be expected. The problem is receiving serious attention in England, and an underground cable has lately been put into use between London and Birmingham, 117 miles. This cable contains 76 insulated copper wires in a lead sheath, which is enclosed in cast-iron socket piping, made in sections of 450 feet each. The cable is laid four feet beneath the surface.

Putting wires underground would do away with a great amount of costly damage every year. Underground conduits should have a smooth interior and water-tight joints. The material of the conduit must be a non-conductor, non-inflammable and not subject to contraction or expansion. In Europe the practice in this art is better than in this country. Cables are laid in trenches, not drawn in. The insulation is compressed paper, with which the conductor always remains in the center of the cable.—Western Electrician.

The life of a chief operator can hardly be a happy one, he meets with so many "reverses."

LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.]

MONTREAL, QUE., CANADIAN PACIFIC.

The personnel of the operating staff at the new office is as follows: James Kent, general manager of telegraphs; W. J. Camp, superintendent; J. F. Richardson, electrician; F. T. Jennings, chief operator; H. Bott, assistant; A. Malcolm, traffic chief; J. F. N. Caisse, night chief; J. Mitchell, assistant; W. J. Atchison, all-night chief.

Operators: Misses A. L. Jennings, N. Massey, E. R. Curry, A. Pinault, M. Duncan, and J. A. Phelan; Messrs. J. H. Lawson, J. A. Collie, A. M. Bennie, O. C. Castleman, J. E. Galey, P. J. Ryan, W. G. Medley, J. A. Fortier, A. E. Jarvis, J. C. Jennings, J. H. Egli, W. Currie, W. P. Spence, E. Hartman, F. J. Spear, C. Gibeau, J. E. Flood, J. D. Wood, A. R. Vallee, W. Bancroft, H. Schrader, J. G. Ross, J. Cole, J. Ross, J. W. Hayden, J. E. Poole, D. P. McLaren, D. McKenna, C. F. Moss, H. H. Lyle N. E. Noble, G. Fitzpatrick, L. L. Hines, J. McCaffray, P. D. Duff, L. M. Walden, R. Bow, W. H. Brunnini, A. W. McLaren, W. D. Fraser, L. Van Every, R. McLea, A. T. King, P. P. Dow, W. J. Barclay, R. J. Ellis, W. F. Gainfort, W. R. Watts, R. P. Dow, J. W. Dunn, and Xavier Senecal.

Service clerks and checks: J. D. Gerard, T. K. Rodger, M. E. Chabassol, C. Laurie, A. Tracy, V. Wallace, A. Lawson, W. C. Farrel, G. Baile, J. Grace, N. Lafond, and H. Masters.

Receiving and delivery departments: A. Walsh, local manager; R. E. Tait, cashier; W. F. Ryan, A. McCormick, J. M. Morrisey, J. Murray, H. Brown, A. O'Sullivan, E. Wright, A. Lavigne, J. Kilcullen, A. McDonald, and Z. Urbane.

In connection with the general manager's and superintendent's offices are: Messrs. Robert Murray, F. McNally, J. Manning, H. Forsyth, and J. Morrisey.

KANSAS CITY, MO., WESTERN UNION.

Night Chief Operator Beeson is happy over the arrival on October 26 of an assistant; weight seven pounds.

We are indebted to Mr. Joseph Masker, one of the standbys of the Chicago office, for a very pleasant call on November 4. He was here in attendance at the marriage of his son.

Mr. Wilson O. Appleby, of the telegraph department of the Sante Fé general offices at Topeka, Kas., was among us November 2.

The annual meeting of the implement manufacturers was held in this city October 30 and 31, and as they filed verbatim reports for their Eastern trade paper, amounting to some fifty thousand

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words in the two evenings, it seemed for a short time as though a miniature National Convention had struck our office, but with nine good direct wires well manned both here and at Philadelphia, the matter was soon in the hands of the printers, much to the satisfaction of all concerned.

E. M. Meisburger has been added to the day force. He has worked several years in Galveston, Texas.

Col. R. C. Clowry, vice-president and general manager, accompanied by his secretary, F. J. Sherer, J. C. Barclay, electrician, and C. H. Bristol, superintendent of construction, all of Chicago; Superintendent T. P. Cook, of St. Louis, and C. W. Hammond, superintendent of telegraph of the Missouri Pacific Railway, stopped over night in our city, November 7, en route to the Pacific Coast.

INDIANAPOLIS, IND., POSTAL.

Arrivals and departures: Mr. J. T. Rogers has returned to Louisville, Ky., after two months in this office. Mr. Lonsdorf, of Toledo, takes his place. Mr. David Connors is our only extra man, and as he is independently wealthy, he only subs when he feels like it.

Our chief operator, Mr. J. F. Looney, left on his vacation November 1.

Mr. W. I. Lupperlatz is busily engaged during his spare time in building a gasoline launch.

Our office was visited a short time ago by Mr. W. H. Baker, vice-president and general manager, who said this was the neatest and best equipped office he had ever seen. We also received a visit from Mr. M. M. Davis, traffic manager, New York, who remained with us several days. As a result of his sojourn here, several of us have had our salary increased. We will be pleased to see Mr. Davis soon again.

INDIANAPOLIS, IND., WESTERN UNION.

Mr. L. K. Whitcomb, chief operator of the Chicago office, recently made us a short visit.

Wire Chief Frank Coit made a trip to Evansville to install half-set repeaters for leased circuit to be used in connection with our Evansville-Indianapolis quad.

Arthur Hamilton and Martin Ryan have resumed work after two weeks' vacation.

WACO, TEX., POSTAL.

The Postal has just moved into their new office at No. 113 South Fourth street, which was fitted up with everything new. Among other additions to the office we have one of Edison's Phonoplex systems which was installed by Messrs. Wyrick and Bennett, of Dallas. This office is one of the neatest up-to-date telegraph offices the Postal has in the State.

Although the cotton crop is short, business has continued good, and two additional operators were pressed into service. The personnel of this office is as follows: H. L. Peoples, manager; C. G. Allen, Morris H. French, and J. J. Dermody, operators; C. L. Peoples, clerk.

Mr. A. G. Steele has resigned to accept a position with the Turf Exchange.

Messrs. Logan and Sullivan, of the Logan leased wire, have recently moved into a very handsomely fitted office, with R. E. Parnell as operator, assisted by George P. Montgomery as board marker.

WASHINGTON, D. C., WESTERN UNION.

Miss Bertie Callan, of the clerical department, and Mr. Frank P. Saffell, formerly of this office, were married in Atlanta, Ga., on November 9. Their Washington friends made them a handsome present.

Mr. R. Y. Cadmus, late of the Cleveland, Ohio, Western Union office, is a recent addition to our waiting list.

Mr. J. L. Carney is another recent addition. Mr. Carney was in the Signal Corps during the Spanish-American war, serving in Cuba, and later, in the Philippines and Porto Rico.

The Schley Court of Inquiry did not develop as much telegraph business as was anticipated. The court was located at the navy yard, and numerous wires were strung by both companies, but the various press associations covered the proceedings so fully that there was very little left for the correspondents to say. Night Manager Young was in charge of the Navy Yard office, assisted by members of the night force.

Mr. Charles Burlingame, after making a tour of the Canadian race circuits this summer for the race department, is back on our extra list.

Bennings races started on the 11th instant, with Mr. Dowling in charge, assisted by Messrs. Burlingame, Hohbein, Parker and Nolan. Mr. Mothershead is receiving clerk, and Mr. Hubbard Bean delivery clerk.

Mr. William Patton is acting northern traffic chief, while Mr. Dowling is at the race track.

Messrs. Richard Patton, and Duke Johnson of the Capital messenger force, have been transferred to the main office as file boys.

Mr. John La Gorce has returned to the main office after several month's service at the weather bureau.

The infant daughter of Mr. J. S. McCarty was burned to death on November 8.

The appearance of the operating room has been greatly improved by a fresh coat of paint.

EVANSVILLE, IND., NOTES.

R. H. Morris, agent of the Southern Railroad, is one of the best railroad men in this city. He is a prominent figure in the telegraphic scrapbook now in the hands of the Old Time Telegraphers' Association. The following are the names of the operators employed at the Southern depot: D. C. Powell, C. H. Wrigel and Guy Evans.

Mr. J. R. Sample, the local agent and superintendent of terminals of the Illinois Central Railroad, is the only official of the Peoria, Decatur and Evansville Railroad that was retained. This speaks volumes for the ability of Mr. Sample as a railroad man. He is an old-time telegrapher.

D. H. Ireland, operator at the Illinois Central city office, learned to telegraph when in the Western Union Company employ in 1880.

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Mr. George Hickson is an operator at the Illinois Central local freight office.

A. J. Dugan, the up-to-date lineman, has been a subscriber of TELEGRAPH AGE for five years.

The following are in the employ of the Evansville and Terre Haute Railroad:

E. N. May, an old-time operator, trainmaster; Dispatchers: Joseph Ehret, who entered the service in 1871; Ollie P. Williams, Robert H. Hutchinson, A. R. Dakin, and E. R. Glidden; E. E. Wieland, agent, and John Kennett, operator.

Col. J. W. Logsdon, superintendent of the Louisville and Nashville Railroad, tells the following story of his early days at telegraphing: I was agent of the Louisville and Nashville Railroad at Sheperdsville, Ky., a wreck occurred. I was kept on continuous duty for three days and nights; on the third night I was overcome by sleep. I kept my grip on the key, however. The next morning "Jim" McIntosh, the chief dispatcher, called me up and asked me to account for reporting more trains than the company had on the road. I was forced to acknowledged to "Jim" that I had been dreaming.

Major H. K. Corrington, the accommodating chief clerk in the superintendent's office of the Louisville and Nashville Railroad, began his telegraphic career in 1873, at the age of 12. He was for many years chief dispatcher of the St. Louis division. For the past twelve years he has been chief clerk, serving under four superintendents.

Chas. Wilson is operator in the superintendent's office.

The force in the dispatcher's office is as follows: R. E. Kemper, chief; M. N. Walker, E. F. Yearwood, I. O. Hart, and Chas. Bour, assistants; Royal Jones, operator, and A. S. Logsdon, operator local freight.

PHILADELPHIA, PA.

My Motto—Honorable Dealing. D. A. Mahoney, Special Representative, the Philadelphia Typewriter Ex. Typewriters sold or rented. Small monthly payments. **Specialties:** $40 and $50 rebuilt Remingtons, Smiths and Jewetts. Address, care W. U. T. Co., cor. 10th and Chestnut Sts.

POSTAL.

The recent Market street fire, by which so many people lost their lives, also came very close to claiming telegraphers among its victims.

Manager Howard McClellan and Clerk Thomas Caldwell, together with those of the messengers then in the office, which adjoined the burning structure, had barely time to escape before the flames and falling walls had destroyed everything.

C. C. Figgs is now at the dry goods district branch office, vice Mr. Harding, transferred to the main office, nights.

The second New York bonus wire is now yielding a little fruit to the energetic efforts of Mr. Monett. The earning of bonus money was heretofore confined to the workers of the first New York.

By the surrender of a leased wire, Mr. W. T. McCorkle has been returned from a broker's office.

After an absence of about four months, the Misses Jennie Melville and Lou Koch have also returned; these, together with the appointments of Messrs, Auerbach, McIntyre, Carroll and Lane, from the extra to split tricks, and Messrs. Behan, Murray, McCartney and Horner from extra to night duty, has placed our entire force on a permanent basis.

In trying to defend himself from a swinging pulley, Mr. W. J. McCartney had his hand hurt; fortunately, not seriously.

Mr. Elmer Locke has been transferred from day to night duty. He was relieved on the Baltimore local by Mr. L. S. Miller.

In the branches, Mr. Cyrus Moffett, on North Third street, feels he is getting his share of the business, while Howard T. Wright, of the dry goods district, has just had a record breaker in the month of October, it being the banner of his fifteen years' service in that office.

Mr. Samuel Lewallen is on the sick list.

Wire thieves are again very active. It is a common thing for the early chief to report the loss of a number of spans of copper wire.

One noticeable feature about the staff on election nights is the periodical visit of a number of outside operators who are never seen on other occasions.

Mr. Robert C. Mecredy, of the Commercial Exchange office, surprised the political rounders in his ward by carrying his division for the opposing side by the largest majority in the ward.

WESTERN UNION.

Our sympathy is hereby extended to C. E. Mapes, of this office, whose sister-in-law, and also a cousin, perished in the recent Hunt, Wilkinson & Co. fire, where both young ladies were employed.

Robert Jaggard, assistant manager of the city electrical bureau, who is well-known here, has been lying at death's door for several weeks.

Charles Saunders of the Stock Exchange office, is the proud father of a son.

John Hannon was sent to Coatesville for several days to relieve the manager, Miss Cullen, who was summoned to New York on court business for the Pennsylvania Railroad Company.

How's This?

We offer One Hundred Dollars Reward for any case of Catarrh that cannot be cured by Hall's Catarrh Cure.

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Hall's Family Pills are the best.

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Eastern Wire Chief E. L. Maize and wife spent a week at the Pan-American and at Niagara Falls.

Miss Clara Gregg, accompanied by her mother, were also visitors at the above named points.

R. R. Stoddard, who was absent several weeks suffering from rheumatism, has again returned to duty.

Doctor Bradley, a well-known old timer, recently celebrated his forty-third year of active service in the telegraph profession. In length of time of such employment he ranks next to veteran Col. Joseph Greene.

John La Gorce of Washington, D. C., was a recent visitor while en route to Wilkesbarre and Scranton, Pa.

Four weddings, quiet but pretty, have taken place within the last two months, the contracting parties being co-laborers with us; we therefore extend our best wishes to all and hope the duplex system will work smoothly and that there will be no "kicks."

The marriages were as follows: Benjamin M. Langstroth to Miss L. B. McClain, who are now residing in Brooklyn; W. J. Shivers to Miss Garwood, who have found a home at Haddonfield, N. J.; George A. Paulhamus, a well-known broker operator, to Miss Louisa G. Flurer; Joseph Benjamin, manager of the Broad street and Columbia avenue office, to Miss Bertha Goldberg. Numerous and costly gifts were made to each of the contracting parties.

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POSTAL.

A new afternoon and evening trick from 3.30 to 11 P. M. was recently made. F. B. Otto, J. Conklin, Fred Hans and Mr. Seaman being placed thereon.

Mr. W. G. Phillips, formerly of this office, is now manager for a brokerage firm at Palestine, Tex., and sends his "73" to his numerous friends here.

Mr. Agnaw, who worked here last summer, has returned to town, after a siege of sickness.

Among new arrivals are Messrs. Carter, O'Neill, Dorsey, Lewis, Fred Smith and Miss Paesler.

Everyone is putting in a good word for TELEGRAPH AGE, on account of its improved appearance and contents.

Both baseball teams at the Board of Trade office played their last game of the season on October 20. The series being a tie up to that date. A good game was played, which was finally won by the "Westerners" by a score of 9 to 7. The "Easterners" played well, and did not give up till the last man was out. The standing for the season being "Westerners" won nine, lost eight; "Easterners" won eight and lost nine. Manager Griffiths umpired the majority of the games and displayed a thorough knowledge of the National game.

Here are the names of the players:

Westerners: E. P. Hearn, E. S. Williams, J. J. Brosnan, G. C. Williams, H. Ginsburg, G. Harding, J. Ebbs, T. McCauley and J. E. Patrick.

Easterners: C. E. Meserve, G. Smallbone, P. Shane, M. Adams, T. S. Gillette, F. Goulden, A. Bassett, J. Duffy and V. Cralle.

WESTERN UNION.

John Foster sustained a severe injury to his knee cap, caused by a fall, but is able to be about as usual, save walking with a slight limp.

A. Z. Parker has been transferred from the ninth to the tenth floor; Mrs. Farron goes to ninth floor in his place.

Dr. Beebe has purchased a practice at McHenry, Ill., where he has gone. We wish him success.

Frank Chana has our sympathy in the death of his sister.

Robert Haight bids fair to become a good wire man, as he is studiously perusing the columns of TELEGRAPH AGE.

A son has been born to Division Chief B. F. McKee.

J. A. Hefferman underwent recently a very severe surgical operation, and has been at the hospital for a month.

Mrs. Lewis, of the Lafayette, Ind., local is on a vacation.

James T. B. Nealon and William Atherton, both of whom have been sick for several weeks, reported recently for work.

The Messrs. Crittenden reunited with their regiment in which they served during the Civil War, at Charlotte, Mich., recently, and where they met Wesley Hounsten, formerly of the Chicago force.

T. C. Brandon, of this office, quite a familiar character to the telegraph profession, and well-known throughout the United States and Mexico as "Flying Ogallala," left on November 1 for Mexico and the South.

A cordial invitation is extended to Chicago telegraphers to be present at the complimentary ball given by the Signal Corps, Illinois National Guard, Friday evening, December 6, at the Armory, Washington Boulevard and Curtis street. This organization being composed almost exclusively of "Knights of the Key," it is expected a large representation of the fraternity will help make the evening one of pleasure and success.

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Messrs. Deacon, McNeal and Cosgrove will be pleased to furnish tickets to any who may request them.

BOSTON, MASS.

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ST. LOUIS, MO., WESTERN UNION.

Col. R. C. Clowry, vice-president and general superintendent, Chicago, has been in this city.

Fred Moe, formerly with the Western Union in New York city, but who is now with The Associated Press at Mobile, Ala., is visiting friends in this city.

Seymour, youngest son of Lorance Boone, assistant chief operator, died on October 28, after a very short illness. Mr. Boone has the sympathy of the entire force.

Miss Teresa Grimes, one of our most popular lady operators, died, Monday, October 21, of typhoid fever.

Alexander Burch has returned to work after an enforced vacation of several weeks, caused by breaking the bones of his ankle joint while alighting from a moving street car.

Charles Jost has resigned the agency of Telegraph Age, and Alexander Frazier has been appointed as his successor.

NEW YORK CITY.

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WESTERN UNION.

The father of H. A. Holensworth, a well-known New York telegrapher, died at Truro, Nova Scotia, October 22.

Mr. L. F. Brannon, one of the finest operators on the day force, leaves for Birmingham, Alabama, December 1. Mr. Brannon made a wonderful record for himself election night sending the greater part of the returns on the bulletin "Merry-go-round" without a single break.

Miss Grace, the daughter of Willis H. Jones, our expert electrician, was married to H. Wellington Doyle, October 30, at St. John's church, Hasbrouck Heights, N. J. The happy couple were the recipients of numerous and costly presents.

The annual entertainment of the New York Telegraphers' Aid Society will take place Friday evening, December 6th, at the Lexington Opera House and Terrace Garden, Fifty-eighth street and Third avenue, New York. These vaudeville entertainments are strictly first-class in character and the society this year has arranged a particularly pleasing program. It will be remembered that the proceeds of these annual entertainments are placed to the credit to the relief fund of the Aid Society. This fund is drawn upon by members of the profession when in need, whether they belong to the Aid Society or not. The general admission to the entertainment is 50 cents; reserved, seats, 75 cents.

The sympathy of all is extended to Bronson C. Edwards in the death of his son, aged four, and to Leslie F. Miller for the death ot his daughter, aged thirteen.

Appointments: W. H. Perrin, J. A. Halpin, L. J. Walsh, W. C. Ward.

Resignations: W. L. Forrester, P. G. Fonville, T. M. Wilson, R. I. Courtenay.

Mr. T. A. Brooks, the genial time keeper, has returned from a vacation.

PRESENTATION.

Miss Katharine E. Donovan, for years past chief operator on the Long Island switch, at 195 Broadway, has resigned her position with the Western Union Telegraph Company, and said "good-bye" to the telegraph. The departure of Miss Donovan was an occasion of much regret to the management, and to her many friends. Her fine intelligence, and the zealous and efficient performance of the arduous duties of wire chief on the Long Island Division, subject as it is, to frequent and unusual interruptions by storms that come in from the sea, rendered her an always respected and valued employe of the company.

Those directly associated with her, while pleased to know that she will have more leisure, and be relieved of much responsibility, nevertheless deeply feel the severing of the long and friendly relations. The women of the office particularly, will miss her wise and sympathetic counsel, and the friendly helpfulness which they never sought in vain.

Upon her return from luncheon on Friday, October 15, the last day of her service, she found a small package lying upon the switch. Investigation disclosed a card, bearing the inscription, "To Miss K. E. Donovan, with best wishes of friends

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at 195," and a handsome Tiffany brooch, set with a fine diamond.

Miss Donovan acknowledged the souvenir in the following letter:

Mount Vernon, Oct. 21, 1901.

My Dear Miss Vatet:

In looking back over the events of the last days of my life and work at 195 Broadway, I am more than deeply impressed with the kindness extended to me by those with whom I have been so long and so happily associated. My heart is full of pleasant memories of each and every one connected with me at the post which I had the honor and pleasure to fill so long, and which I have left with very grateful sentiments toward my companions there. You have all been most kind, and the lovely parting gift I have received I shall always treasure, not only for its beauty, but above all others, it will be to me a souvenir of kindly interest from my friends of Auld Lang Syne.

With many kind wishes for you all, I remain, very truly yours,

KATHARINE E. DONOVAN.

POSTAL.

Election over, the force has settled down to the handling of an increased business; the health of the force is very good, but few being absent on account of illness. Election returns were handled promptly and satisfactorily, as they always are, to all concerned. Since the last issue there have been no arrivals or departures, everybody seemingly settled down for the winter.

THE ASSOCIATED PRESS.—J. A. Hosey has been transferred from New Bedford to Lawrence, Mass.; G. H. S. Keene has been appointed to fill the vacancy at New Bedford, Mass.; E. A. Goshert has been transferred from the New York to the Philadelphia bureau, vice E. A. Walker; Mr. E. M. Fisher, chief operator of the Boston bureau, has resigned, Mr. C. G. Rogers acting in his place, Mr. H. F. Wood being night operator of the same bureau. J. Keating has been transferred from New Haven to Boston; P. S. Goddard has been transferred from Norwich to New Haven, Conn, vice Keating; G. W. Wood has been appointed to Norwich, vice Goddard; J. F. Maloney has been appointed to Manchester, N. H., vice E. J. Neil, who has been transferred to a day position.

The force of the New York bureau consists of the following: H. R. Clark, day chief; W. S. Campbell, J. S. Strachan, P. O'Sullivan, W. L. Waugh and James Uncles, days; C. L. Morris, night chief; W. F. A. Hasson, W. B. McMahon, J. P. Stillwell, A. M. Routt, W. Goodwin Jones.

New York Visitors.

Mrs. J. J. Dickey, wife of Col. J. J. Dickey, superintendent of the Western Union Telegraph Company, Omaha, Neb. Mrs. Dickey was accompanied by her sister.

Mr. J. C. Shaw, manager of the Boston, Mass., office of the Direct United States Cable Company. Mr. Shaw had just returned from England, where he spent a vacation of three months. His friends in the cable service, who are legion, were glad to see him.

Cuban Telegraph Concessions.

Secretary Root has instructed Governor General Wood to restore all telegraph concessions and contracts as they were before the Spanish war. The question came up on complaints made by the International Telegraph Company against the French Cable Company and by the Cuban Submarine Cable Company protesting against the transmission of private messages over the military cable lines between certain points in Cuba. The International Company, operating in conjunction with the Western Union, claimed that messages sent from the United States by way of San Domingo, Haiti and Santiago violated their concession. The Secretary denies this contention, holding that messages were so transmitted under rights acquired from Spain when she had sovereignty over Cuba.

The decision of the Secretary is also in favor of the Cuban Submarine Company, and holds that messages between Havana, Cienfuegos, Batabano and Santiago, and from one of these points to any one of the other of these points, cannot be transmitted over the military lines, but under the concessions must be sent by the Submarine Company.

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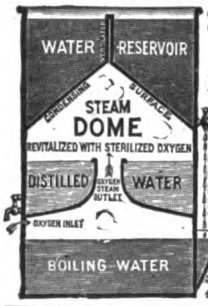
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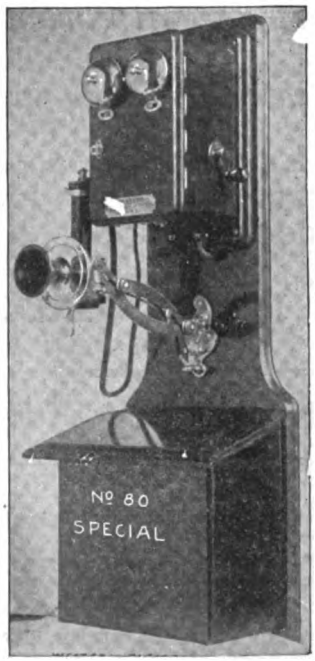
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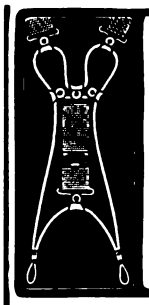
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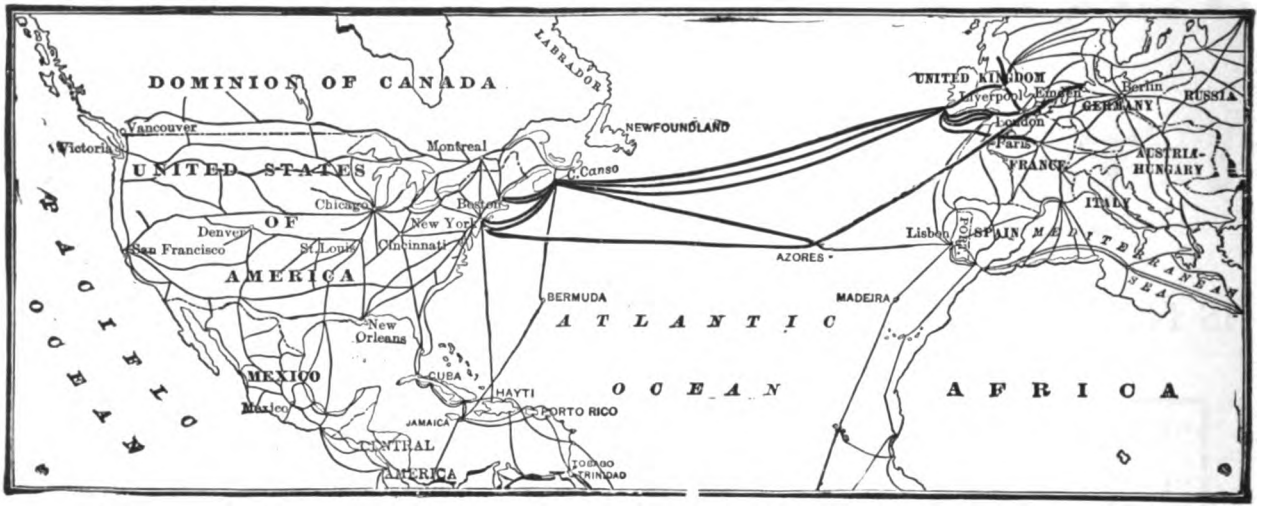
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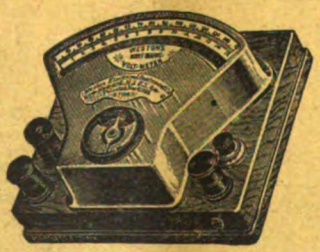
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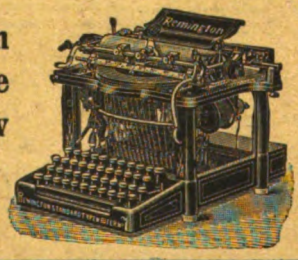
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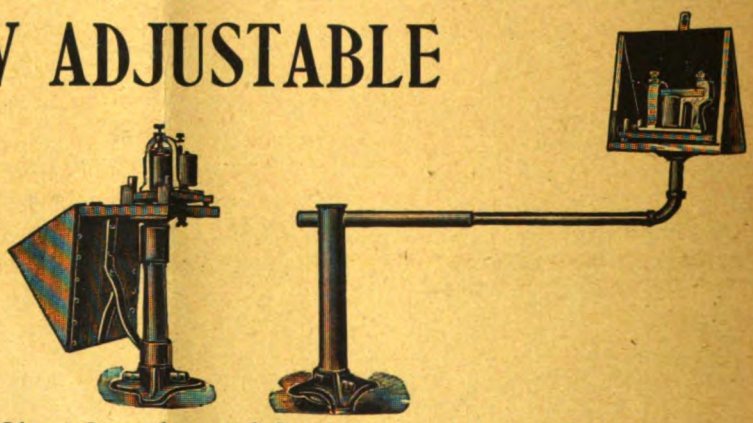
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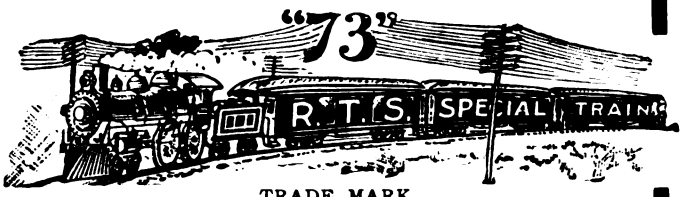
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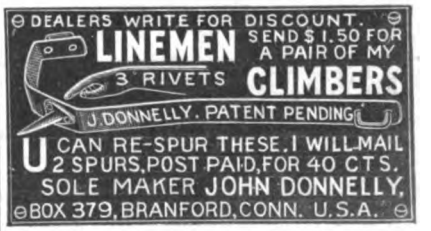
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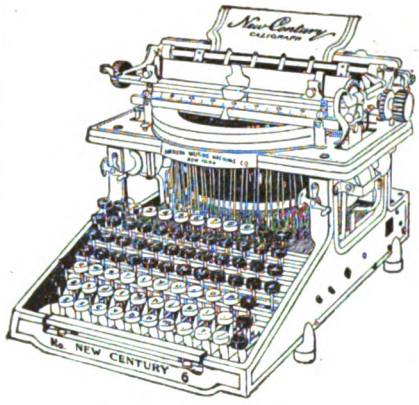
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THE TELEGRAPH AGE.

No. 23. NEW YORK, DECEMBER 1, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

The Equipment of a Modern Telegraph Office.

(Continued.)

BY WILLIS H. JONES.

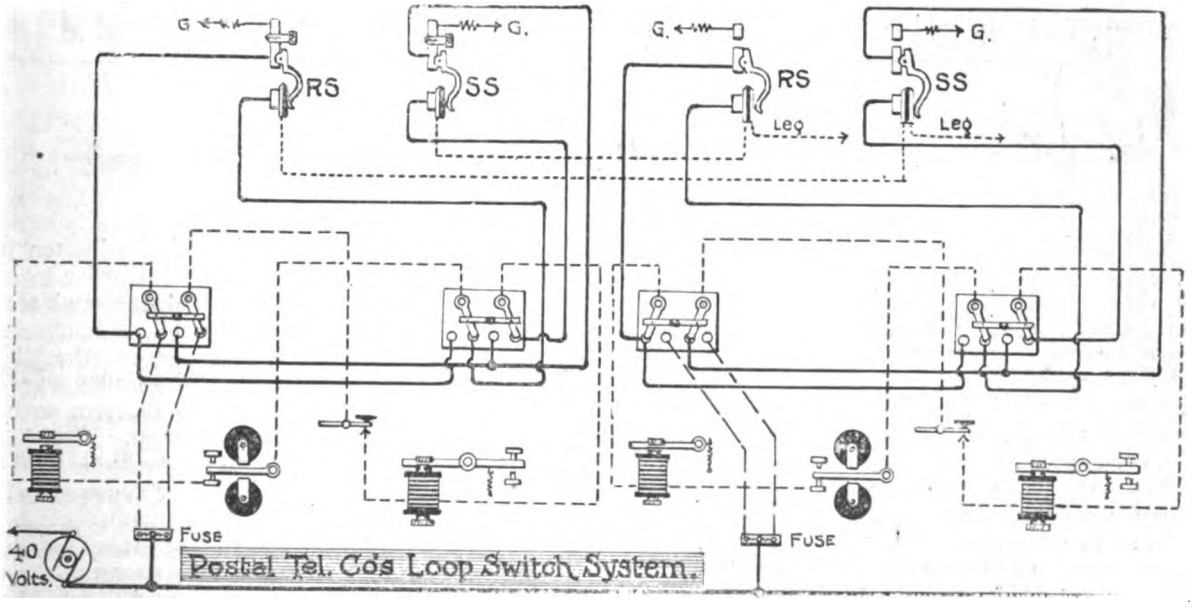
[In the September 1 issue of this journal Mr. Willis H. Jones began a series of articles showing the complete details of equipping a modern telegraph office. Beginning with the proper selection of the dynamos, his aim will be to carry the reader step by step from the cellar to the operating department; thence through the labyrinth of house wires underneath the floor to the various apparatus, stating the size of wires to be used for the main and sub-leads, and last but not least, to give a full and accurate reason for each move.

The series will be a complete handbook for any one contemplating the instalment of a new office or making alterations in an old one. The value of these important articles will be such as to interest a wide circle of readers, and those who desire to follow them in their consecutive order should send in their subscriptions at once. In a few months hence these articles will appear as a chapter in "Pocket Edition of Diagrams and Hand-Book for Telegraph Enquirers," by Willis H. Jones.—Editor.]

The wiring and arrangement of springjacks in the loopswitch described in our issue of November 16, represents the method adopted by the Western Union Telegraph Company in most of their larger offices.

The Postal Telegraph-Cable Company, however, connect the local circuits of their multiplex apparatus with the loopswitch somewhat differently.

A glance at the illustration will show that instead of making one springjack serve for both the sending and the receiving side of the multiplex, they employ two—one for the sending side and one for the receiving side.



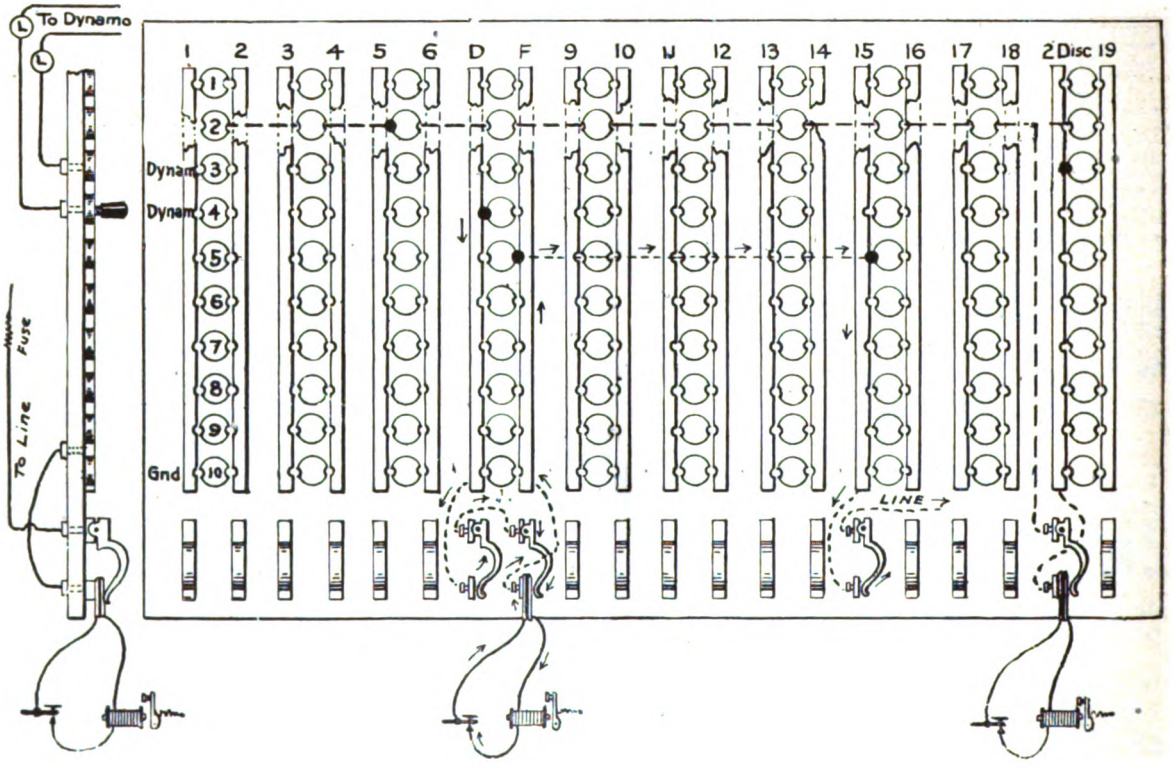
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It will also be noticed that the lamp, or loop compensating resistance, is not located under the desk apparatus, but behind the loopswitch, and that the right hand disks of the three point desk switches, which in the Western Union arrangement would contain the lamp resistance, are now connected by an additional wire to one side of a springjack in the loopswitch. In consequence of this duplicate arrangement, it is necessary to provide two flexible cords and wedges for each loop that is expected to to work on a duplex or quadruplex apparatus, one for each leg.

While the Postal loopswitch occupies more space and requires more conductors and springjacks for an equal number of loops and apparatus than the Western Union arrangement, it possesses some very happy features which go a great way to atone for the extravagance.

set with the compensating ground resistance removed. It is not necessary to remove the plugs from the St. Louis springjacks because the wedges of the conductors which are inserted there as shown, to connect the two duplexes together, are insulated on one side with hard rubber, which cuts off the ground coils at those points.

If you will now trace the course of the current from the fuse and three point switch at the St. Louis set, it will be seen that after it traverses the instruments of both the St. Louis and the Boston apparatus it finally reaches the upper lips of the springjacks in the loopswitch, where it disappears via the grounded resistance coils when normally connected by means of a metal plug, or via a Sun or other branch loop which may be inserted in those jacks. When making the connections for such a combination it is necessary, of course, to see that the brass



The Postal device permits a branch office loop to be placed on a multiplex circuit at a repeating station while one apparatus is repeating into another.

The accompanying diagram shows the manner in which the connections for such a combination is made.

Let us assume that the left hand half of the cut represents the St. Louis duplex apparatus in the New York office repeating into the Boston set on the right, and that St. Louis desired the New York Sun to take a copy of the despatch he was sending to Boston. The process would be as follows:

No change in the position of the switches at the St. Louis set need be made, but the levers on the Boston table must be turned to the left and the metallic plugs at the loopswitch which connects the respective sending and receiving sides of the Boston sides of the connecting cords and the branch legs face each other in the springjacks in order to connect the loop with the local apparatus, and at the same time remove the grounds without making it necessary to actually remove the plugs. The main wire switchboards in large offices are almost invariably of the "terminal" pattern, such as shown in the accompanying diagram. Their construction, however, is such that they may be used for both intermediate and terminal wire connections.

The board is made up of a number of brass springjacks, perpendicular strips of brass, and disks arranged side by side across the structure.

With the exception of the springjacks and upright bars employed as "flips," the construction of the others are identical, and each bar and companion springjack represents the switchboard connections

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for a given external main wire circuit. The detached cut on the left of the diagram shows the complete switch wiring for an external circuit.

The main wire should be attached to one lip of the springjack—it does not matter which, so long as you connect all alike—and the other lip connected by wire to the perpendicular bar immediately above it. This extends the main wire across all of the horizontal rows of disks in the board, any one of which may be connected with the circuit by means of a metallic plug inserted between the bar and a disk alongside of it. This means that whatever is already connected to the disk or row thus metallically attached will form part of the circuit. Thus, a plug inserted at a battery disk would merely extend the circuit to the dynamo room, while a connection with a row of disks to which another external circuit was attached would place two wires in series and make the connecting office an intermediate station.

The single and double "flips" are means for extending a circuit to a distant part of the switchboard structure, where it will be within reach of a flexible desk cord, which latter may be too short to be inserted in that circuit normally located in a remote part of the board.

The single flips are merely duplicates of the other springjack-bar devices, with the exception that one lip of the former jack is connected to a certain row of twenty-four horizontal disks, instead of to an external circuit, as shown in the cut, and the flip designated by the numeral which represents the number of the row assigned for the purpose.

Thus, in the illustration the second horizontal row of disks is connected to the upper lip of a certain springjack, which latter, with its upright bar and switchwiring, becomes No. 2 flip. A desk cord inserted in that jack will connect a relay in any external circuit in the board provided the latter be metallically connected to the second row by means of a metal plug. When such extensions are made, the battery, of course, must be connected at the flip employed.

A "double flip" is two upright bars and springjacks joined in series, but not connected permanently to any row of disks (see diagram). As both bars cross all of the horizontal rows, the combination is employed to use idle or unassigned rows in making extensions similar to the one just described. In this case, however, two horizontal rows are required in the operation, one for the battery and the other for the circuit connected thereto.

Where there are several hundred wires to be provided for, it is customary to divide the switchboard into sections suitable for fifty wires each. This arrangement provides greater facilities for testing and patching the various circuits than would be the case were the wires all in one long switch, because the chief operator in each section, unless he has joined his section to one adjoining by means of a metal plug, may have full control and use of each and every unassigned horizontal row of disks between the top and bottom of the board.

In addition to dividing the switchboard into sections of fifty circuits each, it is a good plan to construct separate boards for each geographical division of the circuits, where the number will warrant it, and locate each structure as conveniently as possible in that part of the room where the traffic which their respective circuits control is handled.

(To be continued.)

Business Notice.

The twentieth century operator uses a typewriter and a Twentieth Century Telegraph Key, and is up to date. Address Foote, Pierson & Co., 82-84 Fulton street, New York.

Recent Telegraph Patents.

U. G. Rogers of New York has been granted several patents for improvements in telegraphic apparatus.

Miscellaneous Items.

Mr. C. W. Henry of the Western Union office, Pittsburg, Pa., has returned to duty in that city after a two weeks' visit with his parents at Richmond, Ind.

Mr. Frank E. Smith, brother of Mr. Isaac Smith, superintendent of tariffs of the Postal Telegraph-Cable Company, New York, is now the New York manager of the Derby Desk Company.

Mr. William McL. Fayssoux, at one time chief operator in the telegraph department of the Ocean Tow Boat Company, at New Orleans, La., has been appointed on the Levee Board by the Governor of Louisiana. Mr. Fayssoux is also a member of the Legislature, and is otherwise prominent in politics in that section.

After having held the position of manager of the Texas department of The Associated Press for more than eight years, James H. Ward of Dallas, Tex., resigned in October to take charge of the "News" intermediate wire. His old wire associates, Messrs. H. C. Strachan, L. A. Hoskins, W. H. Conway, O. C. Morgan, E. M. Morton, R. E. Parnell and E. H. Rogers presented him with a silver loving cup, bearing the inscription: "Presented to James H. Ward, October 26, 1901, by The Associated Press employees of Texas."

Mr. J. B. Bertholf, manager of the Western Union Telegraph Company, and Mr. C. P. Adams, superintendent of telegraph of the Central Railroad of New Jersey, both of Jersey City, N. J., have been indicted at that place for alleged aiding and abetting green goods operators. These are cases of persecution on the part of the police authorities who have been baffled in their attempts to capture green goods swindlers who operate within their jurisdiction. The police entertain an insane idea that telegraph officials work hand in hand with green goods swindlers.

This winter Lieutenant Mitchell of the Signal Corps will build a temporary telegraph line from Fort Egbert to Valdez, in Alaska. This line is now built fifteen miles up the Copper River from Valdez, and it will be continued 480 miles further this winter. Next summer it is expected that both Valdez and Nome will be connected with the civilized world by a substantial telegraph system.

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Death of M. H. Redding.

M. H. Redding, assistant superintendent of the Western Union Telegraph Company's central cable office, 46 Broad street, New York, died at his home in Brooklyn, after a brief illness, on November 17.

Mr. Redding was born in Ireland on March 31, 1842, and came to this country when but a small child. During his early boyhood years he was an attendant at the public schools of New York, leaving the same at the age of twelve to become a messenger of the New York and New England Union Telegraph Company, or as it was known, the "Union Line," at 23 Wall street, a year later becoming office boy. There he acquired the art of telegraphing, and in 1857, when but fifteen years of age, he became an operator in the employ of the Magnetic Telegraph Company, opening the Hoboken office of that company. There he remained until 1861, when he entered the service of the American Telegraph Company, at 145 Broadway, New York, and was assigned to duty on the Washington wires, which in those days were seldom cleared of war dispatches and press matter. In 1864 he became chief operator of the Gold Board, and in September, 1865, on the organization of the Bankers' and Brokers' Company, he was made chief operator in the New York office, afterwards succeeding to the managership of the office, and in 1870 becoming the superintendent of the Metropolitan district of the company. In 1872, upon the absorption of the Bankers' and Brokers' Company by the Western Union Telegraph Company, the latter created a special position for Mr. Redding, making him manager of branch offices. In 1883, he was appointed to the important place held by him up to the time of his death. He leaves a widow and three daughters. The funeral services were held on the evening of November 20, and were attended by about two hundred members of the profession, including almost all of the officials of the Western Union Telegraph Company and others of the fraternity, many coming from distant points. The funeral services were conducted under the direction of the Masonic order, of which he was a member for many years, the ritual being highly impressive.



THE LATE M. H. REDDING.

Obituary Notes.

George V. Dunham, son of C. B. Dunham, manager of the Western Union Cable station at Canso, Nova Scotia, died on November 16.

Cyrus W. Anderson, a well and favorably known operator, of Newark, Ohio, died on November 11, after a brief illness. He was the brother of C. A. Anderson of Newark, Ohio, and Joseph Anderson of Buffalo, N. Y., two well-known telegraphers. He was thirty-eight years of age.

Mrs. Sarah Elizabeth Griswold Morse, widow of Prof. Samuel F. B. Morse, inventor of the telegraph, died in Berlin, Germany, on November 14. She was Professor Morse's second wife, and was married to him in 1848. She was born in 1822. Four children—one daughter and three sons—were born to her, and it was at the home of her daughter, Mrs. Franz Rummel, in Berlin, that she died.

Resignations and Appointments.

Mr. James H. Knoll, a well-known telegrapher of Reading, Pa., has resigned to enter other business.

Mr. L. N. Merrick has been appointed night chief operator at Western Union Telegraph office at Pittsburg, Pa., in place of George M. Eitemiller.

Mr. A. M. Fisher, who for the past year or two has been manager of the Western Union Telegraph Office at Salt Lake City, Utah, has resigned. Mr. J. B. Twiford, the veteran manager at Ogden, has been appointed to fill the vacancy. Mr. Twiford will also have charge of telegraphic affairs at Ogden.

The report of the East Indian telegraph department for 1900-1 has been issued. In 1890-91 the line mileage had grown to 37,000, and of wires to 113,000, and on March 31 last there were over 55,000 miles of line and 182,000 of wire, increases during the year of 2,146 and 11,130 respectively. The year's receipts greatly exceeded those of previous years.

The cable steamer Faraday sailed November 15 from Waterville, Ireland, laying a cable to Fayal, Azores, for the Commercial Cable Company, completing the same on November. By its connection at that point with the cable running direct to Canso, Nova Scotia, this completes the fourth line of this company between the United States and England.

It is announced that the American District Telegraph Company, at Cincinnati, O., will deliver the special delivery letters for the government in that city.

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When the Telegraph Came to California.

BY JAMES GAMBLE.

(Concluded from page 479.)

No sooner had the telegraph in California been demonstrated a success than the people of the Pacific Coast began to realize their isolated position from the rest of the Union, and the question of an overland telegraph line was agitated. After many political skirmishes and the introducing of many bills it was finally decided that no private company would be able to undertake so vast an enterprise without the aid of the Government. It was not only a question of building the line, but the matter of maintenance after completion had to be considered.

A bill finally passed Congress appropriating $40,000 a year for ten years toward the construction and maintenance of a line of telegraph between the Atlantic and the Pacific States. The contract for building the line was awarded to the Western Union Company, who put in a bid at the maximum price fixed by Congress, the bid to go in Hiram Sibley's name, but if successful all the California lines so disposed were to share in the benefits. Other companies had made bids, but withdrew before the time to put up the necessary bonds.

The parties whom Mr. Sibley represented met at Rochester, N. Y., and agreed that if all the California lines would consolidate they should have the construction of the line from Salt Lake to the Pacific connection, while the Western Union should build from Salt Lake to the eastern connection. It was also agreed that the California and general subsidies, together with the receipts, should be divided equitably between them.

In the fall of the same year, 1860, J. H. Wade, the representative of the Western Union Company, came to California to complete arrangements for the commencement of the great work. He brought the matter before the several companies then in operation on the Pacific Coast, proposing to them a plan of consolidation of all their lines, which was immediately carried out. The different companies agreed to consolidate with the California State Telegraph Company and to create a new company called the Overland Telegraph Company, with a capital stock of $1,250,000, to complete a line from San Francisco to Salt Lake. This company on the completion of the line, was merged into the California State Telegraph Company (the capital stock being doubled), which from that time until its later consolidation with the Western Union owned and controlled the telegraph lines from San Francisco to Salt Lake. The Western Union had in the meantime established a similar organization on the eastern side of the continent to meet the line from this side at Salt Lake.

The work of construction was commenced without delay. All the material was ordered and plans were made to complete the line before the close of 1861. The work on the eastern end was under the superintendence of Edward Creighton, while I was given charge of the construction from this end.

The lines of the California State Telegraph Company had been extended as far as Virginia City, in Nevada, and after the consolidation of the lines, so it was decided that we should begin on the overland telegraph at Carson City. The wire and insulators had been ordered from the East and shipped around Cape Horn. The next most important item of materials were the poles. These had to be hauled on wagons and distributed along the route from Carson City to Salt Lake, a distance of 600 miles. As there was not a stick of timber in sight all along the whole distance it seemed a puzzle that would be hard to solve. Fortunately among my assistants was a young man full of pluck and energy, James Street, who was a personal friend of Brigham Young, and early in the spring he went to Salt Lake and made arrangements with the Mormons for the necessary poles along that section of the line. Furthermore he made friends of the Indian chiefs as far as possible and this proved of the greatest advantage. A man who in a negative way did a great deal for the telegraph was Sho-kup, head chief of the Shoshones. He was not only a man of power in his own tribe, but exerted a strong influence over the Goshutes and Pah-Utes.

Sho-kup was persuaded to take a stage ride as far as Carson City and the telegraph was explained to him by an interpreter. He afterward called it "We-ente-mo-ke-te-bope," meaning "wire rope express." His idea of the telegraph was that it was an animal, and he wished to know on what it fed. They told him it ate lightning; but, as he had never seen any one make a supper of lightning he was not disposed to believe that. He was very well treated in Carson City and was told that he might talk with the Big Captain (President H. W. Carpentier) of the telegraph Company at San Francisco. Thereupon he dictated the following dispatch:

"Sho-kup, Big Chief of the Shoshones, says to Big Captain at San Francisco that his Indians will not injure the telegraph line. Sho-kup is a friend of the white man. His people obey him. He will order them to be friendly with the white men and not injure the telegraph. He would like to see Big Captain, but must return to his tribe and cannot go to San Francisco."

On receipt of this message General Carpentier, president of the company, sent Sho-kup several friendly messages and ordered presents of food and clothing to be made to him. We realized fully the necessity of having the Indians for our friends and no pains were spared to this end.

Mr. Street contracted with the Mormons for two hundred to three hundred miles of poles for the eastern section of the line, from Salt Lake west, and I contracted for one hundred miles running east from Carson City to Ruby Valley. I had many misgivings in respect to these contracts for poles, especially regarding those for the middle section. Along that portion of the route the mountains and plains were treeless as far as the eye could reach. Where, then, the poles were to come from I could not conceive. But the frontier men with whom the bargain had been made appeared to know their business, and as I afterward learned had in their hunting expeditions discovered canyons and gorges in the mountains where stunted pine and quaking asp could be found

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sufficiently large for telegraph poles. So far, then, all was satisfactory.

We purchased twenty-six wagons to carry the materials over the Sierra Nevadas, and on the 27th of May, 1861, the outfit was ready to move. It comprised 228 oxen, fifty men and several riding horses. The expedition was placed in the charge of I. M. Hubbard, an experienced and energetic telegraph builder. In spite of our best efforts it took us a month to get over the mountains instead of fifteen days, as had been first calculated, so it was late in June that the expedition reached Carson Valley and the work of construction commenced.

In the meantime, the poles were being distributed from both ends of the line, and as the wire and insulators for the eastern end had been ordered shipped from the Missouri River to Salt Lake, the work began energetically from both ends.

The route selected was by way of Omaha, up the South Platte, via old Fort Kearney, Fort Laramie, up the Sweetwater and through the South Pass to Salt Lake. Thence to Deep Creek, Eagan Canyon and Ruby Valley to Virginia City. Austin and Eureka were not at that time in existence. In fact, the only settlement along that part of the route was one at Ruby Valley, where some troops were stationed.

Mr. Creighton, who, as I have stated, was in charge of the eastern section, and myself communicated freely advising each other at frequent intervals of the progress of the work. His reports showed me with what energy he was pushing forward, and so enthusiastic were we both that a wager was laid between us as to who would first reach Salt Lake ready to open communication with San Francisco and the East.

The line was first staked off, the hole-diggers followed; then came the pole-setters, and next the wire party. We made from three to eight miles per day. An advance telegraph station was kept up with the head of the line and progress reported from day to day. The news received on the arrival of the Pony Express was telegraphed at once to San Francisco and other points. Commercial dispatches were also sent and received daily, and in this way the newspapers in San Francisco were supplied with news and were daily gaining on time as the lines advanced east and west across the continent to their meeting point.

The most friendly relations were maintained with the Indians, and many of them were employed by us largely with this point in mind: that they might report to their tribes how well they were treated and thus favorably influence them toward the members of the party and the telegraph line. That this good feeling was maintained throughout was also in a measure due to an order issued at the start that any man of the expedition getting into trouble with the Indians, or their squaws, would be immediately dismissed from the service, and this rule was strictly enforced.

Besides our general kindness, several incidents occurred that made the Indians think that "the wire express" was distinctly a spirit to be tampered with only by the tribe of white men telegraph operators. At one time, about 200 miles east of the Sierra Nevada, a thunder storm broke over the valley at some distance from where we were working. The wires became so charged with electricity that the men were obliged to use buckskin gloves to avoid the shocks. Some strange Indians came up about this time, and one of the bucks volunteered to help pull on the wire that the men were stretching. His bare hands and feet were just the kind of a conductor that old electro had been waiting for and it gave him such a shock that he doubled over to the ground.

Quick as a flash he dropped the wire and made the prettiest 400-yard dash that I have ever seen. He didn't even stop to take breath. Off at a safe distance, he recovered his dignity, came to a full stop and gravely motioned for the uninitiated bucks of his party to approach.

What he said to them is probably a matter of Indian history, but always remained a dark secret with us. He felt no antagonism toward the party. In fact, we went up a thousand per cent. in his estimation. Those Indians decided that we were an exclusive tribe of white Indians all by ourselves who could handle the unseen spirits without trouble, and they passed the word around among the tribes that the best thing to be done was to treat us well and look out for the wire.

After that when an Indian wanted to cross under a telegraph line the favorite method was for him to get on a horse and go under with full speed ahead.

Even later, when the Indians were on the rampage for soldiers and settlers, they always treated the telegraph with a certain amount of respect. At one time they wrecked an office and carried away a carboy of nitric acid under the delusion that it was a superior brand of firewater. The Indian does not drink his whiskey in pony glasses, but always takes a good swig out of the demijohn to make sure. The first buck who tackled the nitric acid was laid out stiff and cold in less time than it takes to tell about it, and thereupon it was decided in council hurriedly called that any tribe of white men who could drink firewater as strong as that were entitled to the undying respect and admiration of the best Indian buck who ever wore moccasins. And so the decree went forth that the best thing for good Indians was to give any of the paraphernalia of the "wireless express" men a wide berth; that telegraph operators and linemen were good fellows themselves, but their affairs must not be meddled with under any circumstances.

The construction of the line was pushed forward as rapidly as possible. Many serious difficulties were encountered that required our greatest energies to overcome. In one instance sixteen miles of line were built in one day on the desert in order to reach a point where water could be obtained. Again, our pole contractors failed us, and it was necessary to send our own teams to the mountains to procure and haul them.

The first contract with the Mormons was also a failure, but Brigham Young denounced the contractors from the pulpit and said that the work of furnishing poles should and must be carried out. After that things went better. Some of the poles had to be hauled two hundred miles, most of them

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being taken from the mountains in the vicinity of Salt Lake, there being very few to be had west of that point.

Up to the 1st of October the work had progressed as well as could have been expected, all things considered. The poles were nearly all delivered and the line completed, with the exception of some fifty or sixty miles between Ruby Valley and Schell Creek, about midway between Carson City and Salt Lake. For that section of the line we were obliged to go into the mountains ourselves to get poles. We narrowly escaped being snowed in, but after hard work managed to get all that we wanted and be back on the plains before the winter storms had started in earnest. It was a close a shave, however, and I had to go with the men myself to keep them from stampeding.

Having now secured all the poles necessary for the completion of the line and having given orders for winding up all matters and for the return of the expedition, I returned to Ruby Valley on my way home, so as to be in San Francisco at the moment of the opening of the line.

I reached home in ample time for the first message across the great transcontinental telegraph line, which flew over the wire on the evening of October 24, 1861. The great work which had been agitated for so many years on this coast, in the East and in Congress was completed, and in the short space of five months from the time the expedition moved from Sacramento.

It had been proposed to get up a celebration in honor of such an important event, but owing to the uncertainty as to the exact time when the line would be completed no preparation had been made.

The employees of the company who stood around manifested the greatest anxiety, watching for the first click of the instrument across the continent. At last it came, and read as follows:

"Salt Lake, October 24, 1861, 5.13 P. M.

"To General H. W. Carpentier: Line just completed. Can you come to office? STREET."

The next dispatch was from Brigham Young, and read as follows:

"Great Salt Lake City,

"October 24, 7 P. M.

"To Hon. H. W. Carpentier, President of the Overland Telegraph Company—Dear Sir: I am very much obliged for your kindness, manifested through you and Mr. Street, in giving me privilege of first message to California. May success ever attend the enterprise. The success of Mr. Street in completing his end of the line under many unfavorable circumstances in so short a time is beyond our most sanguine anticipations. Join your wires with the Russian Empire, and we will converse with Europe. Your friend, BRIGHAM YOUNG."

The first message sent from San Francisco was as follows:

"San Francisco, Cal., October 24, 1861.

"To Hon. Brigham Young, Great Salt Lake City: That which was so long a hope is now a reality. The transcontinental telegraph is complete. I congratulate you upon the auspicious event. May it prove a bond of perpetual union and friendship between the people of Utah and the people of California. H. W. CARPENTIER."

This message, the first sent over this section of the overland line, I had the honor to manipulate myself. The next in order was the following message, containing the painful announcement of the death of Col. E. D. Baker. It read:

"Great Salt Lake City, October 24, 7 P. M.

"To H. W. Carpentier: Colonel Baker was killed in battle on the 21st, while in the act of cheering on his command. Intense excitement and mourning in Philadelphia over his death. STREET."

The street in front of the office was densely crowded during the evening, and there would probably have been an impromptu celebration of the great event but for the sad news above mentioned, which cast a gloom over the city and prevented any demonstration taking place. Other dispatches were sent during the evening, and among them the following to the President:

"To Abraham Lincoln, President of the United States: In the temporary absence of the Governor of the State I am requested to send you the first message which will be transmitted over the wires of the telegraph line which connects the Pacific with the Atlantic States. The people of California desire to congratulate you upon the completion of the great work. They believe that it will be the means of strengthening the attachment which binds both the East and the West to the Union, and they desire in this—the first message across the continent—to express their loyalty to the Union and their determination to stand by its Government on this its day of trial. They regard that Government with affection and will adhere to it under all fortunes.

"STEPHEN J. FIELD,

"Chief Justice of California."

There were also received a large number of news dispatches, among which were the particulars of the death of Colonel Baker and another announcing:

"Beauregard will retire beyond Bull Run."

The overland telegraph was then an accomplished fact. A few years previous news from the other side was only semi-monthly and usually from twenty-five to thirty days old. Then came the semi-weekly mail by the overland route, with news on an average from eighteen to twenty days old.

After that came the pony express. This latter, though a vast improvement on both the first and the second, only made clearer that something still remained to be done to bring California within the sphere of the other civilized countries of the world.

This the telegraph in its first click did.

With it disappeared the feeling of isolation the inhabitants of the Pacific Coast had labored under. San Francisco was in constant communication with New York and the Atlantic seaboard.

The change was a great one, but it was one to which the people readily adapted themselves, having wished and waited so long for it. In that moment California was brought within the circle of the sisterhood of States. No longer as one beyond the pale of civilization, but, with renewed assurance of peace and prosperity, she was linked in electrical bonds to the great national family union.

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The Bunsen Battery Cell.

The Bunsen cell contains a carbon plate in a cup of porous earthenware filled with strong nitric acid. The zinc is placed outside the porous cup in a jar filled with dilute sulphuric acid made of about one part of acid to twelve of water. A number of molecules of the sulphuric acid seem to be broken up into free hydrogen ions and sulphions. When the cell is in operation, the sulphions appear at the zinc anode and form zinc sulphate, while the hydrogen ions appear at the carbon cathode where they take part of the oxygen from the nitric acid to form water, and leave nitrous acid or hyponitrous acid; or, the hydrogen may even reduce the latter acid to nitric oxide, which escapes as a very corrosive and objectionable gas. This cell gives about 1.8 volts.

The reason why it is necessary to remove the zinc from some forms of open circuit battery when not in use, is because that some cells of batteries where the zinc should be removed when the battery is not in use, and batteries which use permanganate of potash or sulphuric acid in order to secure a high e.m.f., the electrolyte acts upon the zinc by ordinary chemical action, even when not delivering current; such cells are therefore provided with means for removing the zinc when not in use.—American Electrician.

New Australian 15,000-Mile Cable.

On November 1, according to press dispatches, the new cable of the Eastern and Eastern Extension Telegraph Companies between Durban, Natal and Perth, Australia, was opened for general traffic. This cable is a part of a new system of the above-named companies, involving the laying of no less than 15,000 miles of cable to connect England with South Africa and Australia. The new line has been completed between Cornwall, England, and the Cape of Good Hope. The extension from Durban to Perth has just been completed, as above noted, and the remaining section, between Perth and Adelaide, will be laid early next year. The new route takes in the islands of Ascension and St. Helena in the Atlantic, and Rodrigues and the Cocos-Keeling Islands in the Pacific Ocean, all of which were hitherto outside the pale of telegraphic communication. It is a notable fact in this connection that the entire enterprise was carried out without any government assistance whatever in the shape of subsidy or guarantee. The business will be handled entirely by the companies' employees, and not by operators of the different administrations, thus rendering the system independent at all times.

The Chamber of Commerce at Manila has cabled to President Roosevelt urging that the Pacific cable be laid, and saying that the main object would be an immense increase of the rubber industry of the Philippines, estimated at $15,000,000.

Among the recommendations of the annual report of the Lighthouse Board, now in the hands of the Secretary of the Treasury, is that an appropriation of $25,000 be made for connecting lightships with the main land by means of wireless telegraphy.

Sir W. H. Preece's Vindication of the Postal Telegraph Service.

In the course of an instructive and interesting article in the current issue of St. Martins-le-Grand, London, England, Sir W. H. Preece, formerly engineer in chief to the general post office, says:

"Telegraphy became . . . so closely allied with other modes of communication that public opinion in 1868-9 forced the Government to purchase and absorb all the telegraph companies, and to transfer their business to the care of the Post Office, which had shown itself so capable in dealing with letters and newspapers, and in establishing the penny post.

"The telegraphs of this country again became a great monopoly; but there is a vast difference between a monopoly in the hands of a private speculative corporation, subject to no control but that of its own close ring, and whose sole object is to earn dividends, and a monopoly in the hands of the Government, whose sole object is to serve their masters, the public, faithfully and well, and whose actions are incessantly supervised by the jealous and watchful eyes of those they serve, who have an equally watchful and much less tolerant press in which to air their wrath and grievances, and an active House of Parliament, ever ready to counteract and reform real abuses when fairly and properly laid before it.

"It is impossible to conceive supervision more complete than that to which the post office is subjected. The receiver of every letter, the transmitter of every message, the editor of every newspaper, the reader of every news despatch, every householder or business man, can see for himself how his own business is conducted; he can growl and grumble to his heart's content at any error or delay that may occur, with a certain knowledge that his complaint has been heard, and, if just, remedied, although he may not always be satisfied with the attention he receives. The telegraphic business of this country has reached its present dimensions because the work has been done well, and it has been done well because the mode of doing business has been so well and so thoroughly supervised by the public.

"One consequence of the introduction of advanced systems of working has been the necessity of educating the operating staff in the scientific and technical details of the business. The absence of technical knowledge in all branches has hitherto been a great difficulty to surmount. The technological examinations inaugurated by the Society of Arts, and continued by the city and guilds of London Institute, have been most beneficial, but the most successful incentive has been the selection and promotion of those who have given their attention to their own scientific education. This evident necessity for technical knowledge is reacting on the higher post office officials, and one finds all over the country a healthful spirit of inquiry arising—a striving after something better than the mere perfunctory discharge of official duties."

The wireless telegraph system seems to have been designed by nature for the benefit of ships at sea.

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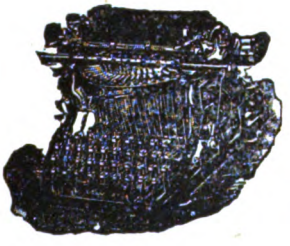
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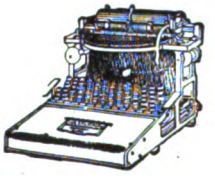


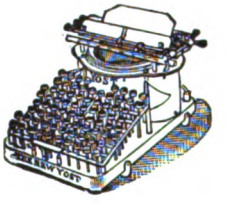
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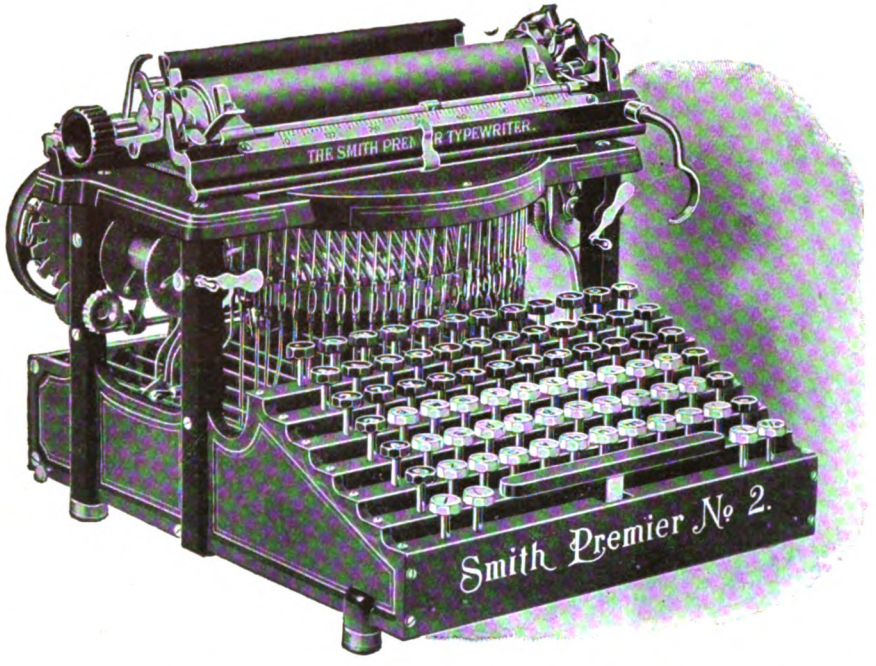
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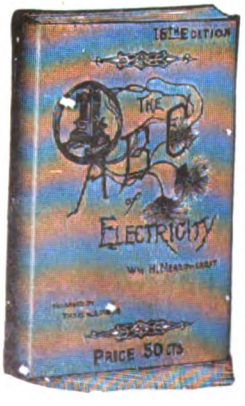
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NEW YORK, December 1, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

The Pacific Cable.

One of the interesting topics discussed at the White House a few days since was the construction of a Pacific cable. The subject was brought up by President Roosevelt during a visit of Representatives Hepburn of Iowa and Sherman of New York, the former chairman of the House Committee on Interstate and Foreign Commerce, and the latter an influential member of that committee. The proposition of the Commercial Cable Company to build a cable is understood to have been brought up, although it is not known what attitude the President takes with regard to it.

Mr. Sherman will introduce a bill early in the coming Congress authorizing the Postmaster-General to enter into a contract with private persons or a corporation for the construction of a cable from San Francisco to Manila, by way of Honolulu and Guam. It will be essentially the same bill which was reported from the House Committee on Interstate and Foreign Commerce in the last Congress, and on which a minority report was written by Representative Corliss of Michigan. Mr. Sherman says he is not committed to the proposition to be set forth in his own bill to the exclusion of all others. He prefers, however, that the Government should not become an owner of telegraph or cable lines.

The President agreed with Representatives Sherman and Hepburn that a cable to connect the United States western coast with the possessions in the Pacific Ocean and Far East is a matter of vital and immediate importance, and it is his hope that the Congress about to convene will take decisive action.

Mr. Sherman told the President that although he proposed to introduce a bill containing a definite proposition for laying the cable, he should not oppose any other reasonable plan that might be brought forward. "The main thing is to get a cable," said Mr. Sherman, "and I don't care much how we get it." He and Mr. Hepburn agreed in the view that no special legislation by Congress is necessary to enable a private concern to lay a Pacific cable on its own account. The State Department, they said, has ample authority to grant a permit for landing the cable.

The Commercial Pacific Cable.

Announcement was made November 19 that the Commercial Pacific Cable Company, which was recently organized in New York for the purpose of constructing and maintaining a cable across the Pacific Ocean, and of which Mr. John W. Mackay is president, had awarded the contract for the manufacture and laying of the first section of the great submarine strand to the Silvertown Cable Manufacturing Company, of Silvertown, near London, England.

The award was made a few days ago after examination by the officers of the new company of three bids from the most prominent cable manufacturers in the world. The cost of making and laying this section is estimated at about $3,000,000. The section will reach from San Francisco to some central point in the Hawaiian Islands, probably at Honolulu, and it is expected it will be completed and ready for the transmission of messages in October, 1902.

The Silvertown Company have already commenced the work of constructing the immense steel rope, and will have the work finished about next July or earlier. The cable will then be loaded on board ships, and it will be three months more before

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it reaches San Francisco, the starting point of its journey across the Pacific. The actual work of laying the cable will consume about seventeen days, and with additional time for establishing the stations and allowing for possible mishaps it will be ready for service in two months after its arrival.

Mr. George G. Ward, vice-president and general manager of the Commercial Cable Company, said when asked why the contract had not been awarded to an American company: "The Commercial Pacific Cable Company would have been very happy to have given an American company its contract, but there is no company in the United States that could, we felt, perform the work. They have not the machinery, and we could not afford to have the work of laying the cable take the form of an experiment. The Silvertown Company has been established for over forty years, and has laid most of the deep ocean cables throughout the world, so that it understands perfectly just how the work should be accomplished.

"The company has assured us that they will complete the cable and have it here in seven months. Just as soon as this section is complete and out of the way we shall commence work on another section that will connect the Hawaiian Islands with the Philippines. Our station there will probably be on the island of Luzon and near or in Manila. We have not decided on that point yet, nor have we fixed our schedule of rates, but I may say, in speaking of rates, that we shall reduce them to a reasonable figure. We expect to have the work completed in about two or three years. The estimated cost of the undertaking is about $15,000,000, but we have capitalized our company at only $3,000,000, because we prefer to increase our capitalization as we proceed rather than use such a large figure at the beginning."

Mr. Ward said it was expected that the new cable would allow of the transmission of messages in nearly four hours' less time than required at present. He commended Mr. Mackay's enterprise in assuming the responsibility, and said he believed he was deserving of much credit.

A Case of "Jollying."

J. Jolly Jones of Dubuque, Ia., is the name of a plaintiff in a suit against a telegraph company for damages. He is described by the press as a peculiar personage, with a peculiar name, and is following out his reputation by entering a most peculiar suit. He claims that the operator handling his message jollied with it, which caused his return home before he had time to consummate the business he was engaged in. He wants $1,000. This case recalls the celebrated sheep litigation, which was recently terminated in a Texas court. A man wired his hired man in another section of that State the following: "Please come at once and bring Shep." In transmitting the telegram the company made the last word "sheep." The hired man returned, bringing with him several thousand head of sheep instead of the dog, as the plaintiff intended.

When a man has not a good reason for doing a thing he has a good reason for letting it alone.—Sir Walter Scott.

The Telegraph Operator.

The visit of Rev. Edgar Y. Mullins to this city, says the Memphis (Tenn.) Appeal, is a reminder of the excellent mental discipline which the telegraph business gives to young men. Rev. Mullins was a Texas boy and man who for many years distinguished himself as a star operator at the telegraph key. In his spare time he read law, but, harkening to a call, turned to theology and at present occupies the highest position in the Baptist Church in the South, being president of the great university of that aggressive denomination in Louisville, having succeeded Dr. Whitsett. He preached twice in this city on Sunday last, and those whom he has pelted with Morse symbols, and who strained and scratched to put down what he transmitted from the other end of the line, realized that in the pulpit he was equally clear, firm and accurate, and that he could "send" with his old time spirit and speed.

From the telegraph instrument have arisen many eminent men. Andrew Carnegie, the multimillionaire, philanthropist and library builder; Lyman J. Gage, secretary of the Federal Treasury; the late Senator Cushman K. Davis, who stood head and shoulders above any one else in this country as an authority on international law; Thomas A. Edison, the Wizard of Menlo Park and inventor of world fame; George Kennan, the writer and Russian traveler. All these served their apprenticeship at the "key." And throughout the country may be found thousands of ex-operators who have achieved success in law, in medicine, in religion, in science, in commerce, and the telegraph operator seems to gravitate naturally to the railroad business and to journalism.

The character of the business is such as to bring out and train the mental faculties to their highest development. The tax is severe. The brazen "sounder" must be listened to, and its clickings translated into English. At the same time it must be written down legibly and accurately, which insures good penmanship and mental nimbleness. The words must be counted at the same time, so that no error may creep in, and both consciousness and subconsciousness are taxed to the utmost to bear the burden imposed on them. The mind and hand, thought and movement, are trained to act synchronously, and the discipline, while severe, is fruitful of excellent results.

Strange to say, that while the telegraph business is a splendid one to engage in, it is not the best to remain in. This is because while it is a splendid disciplinarian for the young mind, it has its financial limitations and possibilities which are not extensive. Those who remain too long, no matter how mentally alert and active, dislike leaving the business to engage in anything else. Those who leave in time, before habit and custom have secured a hold too strong to be broken on them, usually rise to eminence in any avocation they may select. As a signal compliment to the Baptist Church, it must be said that only a few telegraph operators are found in the pulpit, and among these few none so conspicuous as Rev. Mullins.

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A Mysterious Call.

BY MARY AGNES BYRNE.

(Concluded from page 476, November 1.)

It was the day before Thanksgiving, a wet, slushy, dismal day, the kind suited to having the "blues." We were all working hard; it had been a week of wrecks and detentions; all the engines seemed to have gotten out of gear, and their crankiness affected the crews and the dispatchers. The office force had been working extra, and with the wear and anxiety our nerves were in a state of tension. To make matters worse, some of the boys had succumbed to a prevailing fever and were obliged to stay home under the doctor's care, so that we who had escaped were compelled to do double duty. Gregory complained of having symptoms of the disease, but when the others failed he felt that he simply could not give in when his help was most necessary. He sat at his post day and night, hardly stopping to eat, allowing himself only a few hours' sleep, during which his mind was still on his work, so that it did him little good.

The afternoon's mail brought to the office a square black-bordered envelope bearing a foreign postmark, addressed to Orin Gregory. It lay on his desk for a time until he managed to snatch a few seconds to break the seal. His face grew even paler than usual while he read its contents. It announced the sudden death of his brother, his only surviving relation, whom he had not seen for many years. He was in business in Australia, and they had looked forward to a meeting in the spring. Gregory told me this in a few broken sentences, adding bitterly as he again gave his attention to the train book, "Thanksgiving Day! I'd like to know for what I can give thanks!"

"It has been pretty bad for us all, old fellow," I said, "but particularly hard lines for you." That evening a terrific storm set in, the wind blew hurricane-like and with it came a heavy fall of sleet that made havoc of the wires. They were all down, and we thought ourselves lucky when we succeeded in patching up a couple of train wires. The tracks were in a fearful condition, the trains badly delayed. Midnight found us all quite exhausted, but we could expect no relief for several hours, and doggedly stuck to our posts.

Just as the hands of the big clock pointed to half past one we were all startled by Gregory jumping to his feet while he shrieked: "My God, boys, I forgot that order! 77 and 2d 2 will come together! I am a murderer, and yet I thought I could not make a mistake in running trains if I tried!"

For a moment we were all as though paralyzed. Surely it could not be so! No, old Gregory was overwrought, mistaken. But, alas, we soon found that the order for 2d No. 2 to wait at Frazertown for the passing of 5th 77 special freight had indeed been overlooked. They would meet near Silverton, and the people, the poor, helpless ones hastening along with expectations of Thanksgiving greetings and cheer, would find instead a sudden horrible fate! In imagination we could see the spot—for, of course, we were all more or less familiar with every inch of the road; could hear the crash of the two iron monsters as they came together with lightning speed; could hear the cries and moans of the hapless doomed creatures amid the awful ruin and fire.

"If we could run 2d 2 on the other track to Bronson," began one of the boys. "There is a switch at Silverton," interrupted another. "But no operator there at night," we groaned in despair.

Suddenly, as if seized by an inspiration, poor Gregory, who had been wildly tramping back and forth across the room, sat down at his desk and grasped the key and began calling, "Sv"—the call for Silverton. "She told you she was going home hours and hours ago," said some one, sadly, but he paid no heed. Had his mind given away under the terrible strain, we asked ourselves. Would it not be well to get out the wreck car and send physicians to the scene without delay? But something kept us inactive. We waited in mute agony, watching that pallid face, on which great beads of perspiration stood out. His black hair hung in straight, clammy locks; he sat as one petrified, and the hand which held the key seemed to guide it without the stir of a nerve. Straight before him he stared, and I and some of the others who passed within range of his sight knew that he was looking beyond us; we even imagined that we felt a slight electric thrill.

Still he sat calling, calling. "O Heavens!" we thought, as the few moments glided away, seemingly an eternity, "if there were only an operator at Silverton we would still have a chance to save the train," but, alas, that terrible "if!"

Irma generally quit work at seven o'clock each evening. That night she locked up the office at the usual hour and went home. Feeling tired she retired early. She usually slept soundly all the night long, never awakening until summoned by her mother to breakfast. On this occasion she fell asleep as soon as her head touched the pillow. She did not know how long she had slept, when she was aroused by hearing her call, "Sv, Sv." as if on a telegraph instrument. She sat up in bed, thinking she had dreamed it, but, no, she still heard the click of the sounder, "Sv, Sv," fast and faster, signing "B," the call of the despatcher's office, and she recognized the sending of her instructor, Orin Gregory.

As if impelled by some unseen power, Irma hurriedly dressed herself and went out into the disagreeable night. She was naturally very timid, but, strange to say, no fears troubled her then. On and on she ran through the drenching rain, still hearing that mysterious summons. She did not wonder what it meant, nor question the source from whence it came; she only felt that she must answer it, that the call must be obeyed.

It was not until she stood outside the office door that a momentary hesitation came to her. She thought how foolish she was; everything looked all right; her mother would be alarmed if she awoke and discovered her absence; she had had the nightmare no doubt—but no, that call was real, imperative—it still rang on her ears. She heard also the rumbling of trains, the loud warning of locomotives at some crossing in the distance; but the noise was familiar, she paid no heed. She unlocked the door,

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and, standing there in the darknesss "cut-in" the instrument. It was calling her just as she had heard it all along. She answered the call, "I, I, Sv."

The crash of a thunderbolt would not have created greater consternation in the office; a celestial visitant appearing in our midst could not have caused more joy than did the light touch of that young girl's hand upon the key. We all held our breaths after the first murmur of mingled emotions, while Gregory gave his orders in his usually terse manner, the clear cut, staccato characters as played by a master hand. Then came Irma's "O. K." promptly, hurriedly.

The sounder hushed; Gregory's hand lay on the closed key, expectant. The telegraph instrument, hitherto a common thing, often a wearisome, clamoring one to us, was suddenly invested with an eerie spirit. We waited around it, hoping and fearing What was the message it would click out next—life or death?

What was taking place at Silverton? Everything depended on a frail little girl—if she lost her nerve, became confused, if her strength should fail in trying to operate the switch—a thousand lashing "ifs" to torture the brain.

At last! Blessed relief!

I think we were half mad with joy when we heard that all was well; that 2d 2 had run in safely past the station just before the heavy freight went thundering along on its way to the west.

"What hath God wrought!" cried one of the boys, the words forever to hold a newer meaning to us all.

As for Gregory, he laid his head on the table and sobbed like a child.

"And I thought I would have nothing for which tc be thankful," he said, brokenly. He was totally unstrung and had to be assisted home. His work of train running was over—he never afterwards touched a key.

The doctors said he had been a victim to the fever for several days; it was only his obstinate will power that had kept him at work so long. For six weeks after Thanksgiving he raved in delirium, always going through the experience of that terrible night, often calling for Irma and becoming unusually calm when she came with her mother to see him.

"Of course, he recovered and married Irma," exclaimed one of the listeners.

"You have guessed aright. Gregory's brother had left him a competency; he entered business in a western city, where they are now living happily."

As the narrator concluded, a silence fell upon the little group. They gazed at the flickering firelight.

"I wonder what it was that Irma heard," Caddie remarked at length. Some one murmured something about the transmission of thought or the power of one mind over another while Cecil said softly, "I think it was God who called her in answer to that poor man's earnest prayer."

"Died very sudden, aged 89 years," the press dispatch read regarding some prominent citizen who had just passed away.

"Sudden," mused the receiver, then added aside, "Huh, I don't call 89 years very sudden."

Greengoods Telegrams.

In the annual report of J. L. Bristow, the Fourth Assistant Postmaster General, it is recommended that an amendment be made to the Interstate Commerce law to prohibit telegraph and express companies or their employes from aiding and abetting in green goods or lottery swindles, or any other scheme carried on partly by mail and partly by common carrier in violation of the postal laws. (If Mr. Bristow thinks he can distinguish a green goods telegram when he sees or reads it, he will undoubtedly be regarded as the brightest man in America.)

The Dawson overland line, via Ashcroft, B. C., has been interrupted almost continuously since the line was constructed, about three months ago. These interruptions prove conclusively that the telegraph engineers have a difficult problem to solve in maintaining telegraphic communication with Alaskan points during the severe weather which prevails in the northern climate about nine months out of the twelve.

On October 30, the cable steamer "Viking," which has been built under British corporation special survey, to the order of the Amazon Telegraph Company, was launched in England. The vessel is of somewhat unusual type, and is intended for special service on the Amazon river, in South America, up which for several thousand miles submarine cables are laid.

The cable between Skagway and Juneau, Alaska, which was laid in the past summer, worked successfully only about three days.

A B C of the Telephone, a practical treatise, by J. E. Homans, A.M., containing 352 pages and embellished with 269 illustrations, is without doubt the lowest priced work of high character on the subject that has yet appeared. The book is arranged in twenty-eight chapters, dividing the subject into definite departments for reference.

Owing to the great growth of the telephone industry during the past few years, and in response to the demand for a comprehensive book giving a clear, terse idea of the different principles governing the construction, installation, care and management of the various telephones and their appliances, the A B C of the Telephone has been compiled. It is written in a most clear and careful style, and aims to give a complete review of the subject of telephony from the first invention to the most recent improvements.

No expense has been spared in gathering valuable information, and it has been the aim of the author to make this treatise the most complete elementary book ever written on this subject for the practical electrician, wireman, lineman, engineer and all persons interested in this great achievement of modern science.

This book will be sent to any address, express charges prepaid, upon receipt of one dollar. Send orders to J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

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Annual Meeting of the Telegraphers' Mutual Benefit Association.

The annual meeting of the Telegraphers' Mutual Benefit Association was held at 195 Broadway, New York, on November 20, President Walter C. Humstone in the chair.

After greeting the delegates, President Humstone requested the reading of the reports of the president, the secretary, the treasurer and the auditing committee, all of which were ordered printed and distributed among the members.

The secretary's report shows that the total membership is 4,651 in the full grade, and 501 in the half grade, an increase of 84 in full grade and 63 in half grade.

The sum of $10,000 was carried to the reserve fund, which now amounts to $188,213.82. The interest on the reserve fund not only pays the current expenses of the association, but also five assessments.

The old officers of the association were then re-elected for the ensuing year: President, Walter C. Humstone; first vice-president, W. H. Young; second vice-president, Charles P. Bruch; secretary, M. J. O'Leary; treasurer, A. R. Brewer; executive committee, W. C. Humstone, A. R. Brewer, James Merrihew, Charles P. Bruch, Joseph L. Edwards and M. J. O'Leary, all of New York; E. J. Nally, Chicago; S. S. Garwood, Philadelphia; W. H. Young, Washington; B. Brooks, Denver; C. W. Hammond, St. Louis; auditing committee, E. B. Pillsbury, chairman, Boston; W. J. Dealy and Thomas E. Fleming, New York. Sixty-four full grade members and four half grade members died during the year, and $70,500 in death claims was disbursed during the same period.

President Humstone in his report said:

"The business for the fiscal year just closed shows that the revenues from assessments and fees exceeded the average of the preceding five years by more than nineteen per cent., and from interest by nearly seven per cent., while the payment for death claims increased forty-one per cent., and expenses, two per cent., respectively. During the same period the reserve fund increased thirty-seven per cent. and the membership, seventeen per cent.

"While these statements are in the main satisfactory, your attention is again directed to the steady increase in the death rate and to the fact that the ratio of membership practically remains unchanged from year to year.

"Of the deaths reported during the past year, nearly one-half were members for more than twenty years, and of that number many were admitted at ages exceeding thirty years, who, had they been admitted under the present graded system of rates, would have been much larger contributors to the mortuary fund. It is largely to overcome this inequality, which to some extent continues to exist, that a considerable increase in membership is so much to be desired during the present and future years. To that end I cannot too strongly urge upon all the necessity for earnest work in this direction, and also to the importance of maintaining membership, when once acquired. It is much to be regretted that so many lapses occur among our young members, fresh from the hands of the medical examiner, long before the advantages of the association can have been fairly tested by them."

The secretary, in a brief address, stated among other things that the records of his office showed that during the past eleven years $536,000 was paid in death claims to the beneficiaries of deceased members, and that the greater part of this large sum was paid in cases where there was absolutely no other insurance of any kind, thus demonstrating in the most practical manner the great field that the association is filling for the members of the telegraph fraternity and how much it deserved the earnest support of all. He made a strong appeal to the members present to not in any way relax their efforts to bring its advantages to the attention of their associates, and especially the younger men and women entering the business. After thanking the agents for their services he closed with a touching tribute to the memory of the late M. H. Redding, who was a member of the association for thirty-three years, and who was at all times one of its warmest friends and supporters.

Among those present were H. W. Sauer, W. D. Schram, Frank Coyle, J. Costelloe, J. H. Montgomery, C. S. Pike, Thomas E. Fleming, Charles P. Bruch, Walter C. Humstone, C. Hicks, C. D. Phelps, W. E. Conrad, E. E. Brannin, W. Guthrie, Isaac Smith, W. J. Morrison, E. F. Howell, A. R. Brewer, J. L. Edwards, M. J. O'Leary, J. B. Taltavall, John Brant, William Holmes, William L. Ives, Lewis Dresdner, all of New York; W. H. Young, Washington, D. C.; C. R. Tracey, Wheeling, W. Va.; J. J. O'Connor, Albany, N. Y.; W. E. Vanarsdale, S. S. Garwood, John Wintrup and J. Chapman, of Philadelphia, Pa.; J. W. McLean, Baltimore, Md.; E. B. Pillsbury and J. P. O'Donohue, Boston, Mass.; H. L. Waterbury, Saratoga, N. Y.; J. E. Golden, Bradford, Pa.; W. P. Cline, Richmond, Va.; H. V. Shelley, Bridgeport, Conn.; F. W. Conn, Brooklyn, N. Y.; J. W. Tillinghast, Buffalo, N. Y.; J. B. Bertholf and J. Van Dusen, Jersey City, N. J.

MUNICIPAL ELECTRICIANS.—Mr. Frank P. Foster, the secretary, announces that there will be a meeting of the executive committee of the International Association of Municipal Electricians at Corning, N. Y., on December 14, to select and assign subjects for papers to be read at the meeting of the association to be held at Richmond, Va., next year.

"Wireless Telegraphy" is the title of a new and popular exposition on this interesting subject, by G. W. Tunzelmann, B. Sc., the author of "Electricity in Modern Life." The volume is fully illustrated, and includes chapters on ether and ether waves, the discovery and development of the coherer, the systems of Marconi, Popoff and others. It is a capital book, and affords just the line of information now in such demand regarding the topic treated. It will be sent on receipt of price, 75 cents, to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

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The Magnetic Club Dinner.

The Magnetic Club held its autumn dinner at the St. Denis Hotel, on the evening of November 20. The affair of last week was a representative gathering in the best sense of the word, about 200 members of the club being present, including many from out of town. Dinner was announced at 6.30 o'clock; Mr. Gerritt Smith asked a blessing. The tables presented a handsome appearance. Over that of the president was the motto of the club, "Are You Happy?" and a huge magnet, in the center of which appeared the symbolic figures, "73." President Francis W. Jones had gathered around him such prominent telegraph people as Thomas F. Clark, Col. A. B. Chandler, A. R. Brewer, James Merrihew, W. H. Baker, W. C. Humstone, E. C. Platt, C. H. Wilson and others.

The Hungarian Band furnished music, and a varied entertainment of song, interspersed with violin solos by Professor Bimberg were much appreciated by those present. The "Holy City," sung by Mr. Fisher Miller, an old member of the club, as well as the singing of J. E. Stanley, a newly elected member, won especial praise.

Letters of regret were read from George G. Ward, C. A. Tinker, E. J. Kelly, L. C. Weir, W. J. Dealy, J. H. Smart, D. J. Ludwig, T. P. Scully, Charles Selden and H. J. Pettengill.

New members elected were J. Edmund Stanley, J. H. Hess, I. M. Post, D. F. Mallen, William Hawes, F. A. Williams and W. H. Ten Broeck.

President Jones, in his opening remarks, stated that it was to be regretted that the funeral services of the late M. H. Redding were arranged to take place at the same time as that selected for the dinner, and that many who were then in attendance at the funeral services, and consequently not present at the dinner, would doubtless make their appearance later in the evening. He said that from his point of view he could see nothing at all incongruous in attending both functions upon the same evening, providing a broad and proper view of the object of both be taken, for, as he said, one function was to extend sympathy and show respect to the memory of a deceased comrade and friend by personal attendance at the ceremonies to be performed over his lifeless body prior to its being forever laid away. The dinner was not at all a matter of mere feasting and merrymaking. Those features were entirely incidental and subordinate; the prime object being to meet and greet acquaintances and friends who have long been associated, but whom members would not see for years unless brought together at stated periods upon such an occasion as is afforded by the holding of the Magnetic Club dinner.

He said also that there was more than that involved, because the stepping down from official position of those who have the direction of affairs, to the common plane of the every-day worker, who may be likened to the man behind the gun, was to establish an entente cordiale between those whom the employers have selected to direct and regulate, and the much larger number that are called upon to labor and obey. And, holding this view, which he believed to be the correct one, it seemed to him that the occasional falling out of the ranks of some well-known and well loved comrade, either officer or private, should be a spur to those who are permitted to remain a while longer, to give more attention to their duties in a fraternal and a social way, especially towards those who are working together in the same line of business.

The president later introduced Mr. Thomas F. Clark, who, in some lengthy preliminary remarks, referred to the professional pride entertained by lawyers, doctors, artists, literary men and others in their several vocations. Then, branching into the subject of telegraphy, he said:

"And now, gentlemen, you are, I am sure, asking yourselves what application these disjointed remarks have to us, who represent the working force of electrical industries. They have, I think this application. No matter how strenuous the efforts of the individual may be, it is to the pride of our craft that we must look for the best result of our combined exertions. It is so with all callings and professions. If I have lent a suspicion of jocularity to the instances that I have cited, still I believe in the seriousness of the proposition that where there is such an interdependence of action as there must be in the details of such large organizations as ours, only the coherence of our endeavors will achieve the prosperity on which we all depend. And if the lawyers, the doctors, the authors and the artists put this idea into practice how much more reason have we to do so? There is no calling that justifies more surely such a pride.

"I believe that to the telegraphers, who are the seniors in rank of all electrical workers, it is unnecessary to make an appeal for such a condition. It exists, it always has existed, and will always exist. I have also good reason to believe that it is equally alive in the other departments of electrical activity that are represented here this evening. It is the spontaneous outgrowth of the conditions of our work. Promptness, regularity, exactness, judgment and courtesy are the natural outgrowth of the business. Without them the complaint bureaus would be much larger concerns than they are now, and the business less. The daily, hourly schooling of these qualities result in the expansion of natural abilities that find their way to recognition. The skilful manipulation of electrical devices has made us the servants of the world. Enterprises have grown in magnitude so as to stagger the powers of comprehension. One almost essential element in their creation has been an unqualified faith in the employment of the means of communication between distant factors which our calling provides. The years, the days, the hours, are crowded with events because of faith in the integrity of the system that conveys the mandates of rulers from hemisphere to hemisphere, the transactions of commerce from city to city, and messages of personal love and sympathy from home to home.

"With such a universal confidence we have every reason to take pride in our craft, and we do! It not only lends efficiency to our work, it helps us also in the perplexity of management. You must never forget that we are bound by inexorable com-

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mercial necessities and laws, as every responsible financial undertaking must be. The vision has sometimes to be very long, future consequences must be anticipated with almost prophetic prevision, and just as this is done successfully so prosperity is achieved. It is only done, however, at the cost of untiring vigilance, of incessant labor and the nicest calculations of profit and loss. But this is apart from the question. Through all the troubles that may be common to all of us on whom the hand of labor is laid, I hope that the pride of telegraphers in their calling will always be justified and never cease to be an inspiring tradition, and I have confidence to believe that it will."

The affair was brought to a close about 11.30 o'clock, a benediction being pronounced by Col. A. B. Chandler.

Among those present were: R. E. Fagan, R. J. Murphy, G. Roehm, T. A. Brooks, Gerritt Smith, Col. A. B. Chandler, W. S. Eckert, A. P. Eckert, Isaac Smith, Frank E. Smith, C. A. Rhodes, R. W. Scheffler, W. D. Francis, C. A. Benton, A. E. Price, A. R. Brewer, W. H. Ten Broeck, George H. Hamilton, C. F. Pearce, J. F. Ahearn, E. J. Rankin, F. E. McKiernan, D. F. Mallon, C. P. Bruch, F. Pearce, F. D. Murphy, T. L. Cuyler, Jr., T. E. Fleming, E. C. Platt, D. W. McAneeny, James Kempster, W. B. Vansize, G. H. Usher, John Costelloe, M. R. Cockey, C. H. Wilson, G. T. Manson, H. S. Young, D. J. Murphy, C. B. Mears, J. A. Henneberry, S. F. Miller, F. M. Ferrin, J. B. Taltavall, W. C. Humstone, F. W. Jones, John Brant, W. J. Wendell, A. H. Hess, S. F. Jones, C. F. Colyer, M. H. Kerner, C. Shirley, J. F. Skirrow, W. Maver, Jr., William Marshall, A. H. Watson, Thomas F. Clark, H. G. Pierson, G. W. Fleming, F. F. Norton, G. Edward Harding, B. M. Downs, F. F. Downs, J. B. Sabine, J. McKenzie, W. Conover, J. F. Shorey, J. R. Van Wormer, R. J. Marrin, W. W. Briggs, C. W. Morris, Col. C. P. Simmons, James Watson, E. B. Bruch, E. T. Birdsall, W. S. Hallett, I. A. Van Dusen, J. F. Cleverdon, R. N. Cleverdon, W. Cleverdon, Col. A. B. de Freece, Prof. D. Bimberg, W. H. Hodgins, M. J. O'Leary, J. D. Underhill, F. W. Conn, J. K. Calvert, W. L. Ives, J. F. McGuire, James Merrihew, T. Brennan, A. E. Sink, W. T. Larkin, T. J. Smith, Gardner Irving, Hon. P. Bloch, J. McParlan, J. H. Robinson, L. R. Hallock, M.D., W. H. Baker, A. E. Chandler, H. L. Shippy, A. E. Pearsall, W. D. Schram, W. J. Austin, G. H. Dickinson and J. E. Stanley, all of New York; A. C. Kaufman and J. J. O'Connor, Albany, N. Y.; J. P. O'Donahue, E. B. Pillsbury, S. A. D. Forristall and E. A. Smith, Boston, Mass.; H. V. Shelly, Bridgeport, Conn.; J. E. Golden, Bradford, Pa.; George F. Williams, Foxboro, Mass.; E. B. Baker, New Haven, Conn.; W. A. Vanarsdall, S. S. Garwood, J. A. Chapman, J. Wintrup and W. P. Phelps, Philadelphia, Pa.; W. P. Cline, Richmond, Va.; H. L. Waterbury, Saratoga, N. Y.; I. W. Copeland, Troy, N. Y., and J. W. McLean, Baltimore, Md.

The sunshine of life is made up of very little beams that are bright all the time.—Aiken.

The Trans-African Telegraph.

The report recently issued by the British South African Company contains much of interest to engineers, says Engineering. The work being done on the transcontinental line appeals in a special degree to the imagination. The adventurous servants of the company had, at the date of the report, carried the line up to the southern shore of Lake Tanganyka, and thence into German territory; the total length erected during the year being 325 miles. At the end of the previous season the line had reached Karonga, near the northern extremity of Lake Nyassa. From this point to Lake Tanganyka is a distance of nearly 200 miles, in the course of which a "divide" has to be crossed. For the first forty miles the road is quite impracticable for wheeled traffic, and all transport had to be effected by carriers. Smallpox broke out among these and they deserted in thousands. Further on, the road proved easier, but required to be almost entirely remade, and many drifts had to be constructed across the rocky beds of streams. Some trouble has been experienced in maintaining certain sections of the line previously completed. The sixty-seven-mile section from Chiromo to Chikwawa passes through a large marsh in which the vegetation grows to such a height during the wet season as to top the wire, thus causing great loss by leakage. The natives can not be persuaded to cut down the grass and trees, as the place swarms with crocodiles. In the next section the line passes through a thick forest, and as no proper clearance was made at the outset, constant watchfulness on the part of the patrols has been necessary to prevent serious interruption from falling trees. In the section from Zomba to Fort Johnson the elephants caused an interruption by breaking off poles. In the sections immediately following, the line passes through marshes and forests. Some of the trees met with were enormous, one specimen measuring over 100 feet in circumference. This district is stated to be most unhealthy in the rainy season, and it is difficult then to repair faults, as most of the track is under water. In the rough country following these belts of marsh and forest the line has had to be carried over numerous gorges and ravines in spans of from 200 to 300 feet. These ravines are impassable to linesmen in the rainy season, but plant is now being provided to cope with this difficulty.

Telegraphs in Great Britain.

The number of telegrams in Great Britain sent during the last fiscal year, according to the Postmaster-General's official report, was 80,576,961, showing a decrease of .92 per cent. The net deficit on telegraphs was £353,216, or £64,624 more than last year. If allowance be made for interest on the capital—£10,868,663—created for the purchase of the telegraphs, the deficit on the year is raised to £652,104.

Operators interested in the method of treatment of writers' cramp will find very complete information in the little booklet entitled "The Cure of Telegraphers' Paralysis," published by TELEGRAPH AGE, New York. Price 50 cents.

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LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.]

CINCINNATI, OHIO, WESTERN UNION.

A. L. Buchanan has the sympathy of all in the sudden death of his venerable mother, which occurred on November 9.

Martin L. Cook has joined the great army of benedicts, leading to the altar, the latter part of October, Miss Automeit, a charming young lady of this city.

Miss Eda Emigholz has recently returned from a three months' sojourn in Colorado much improved in health.

Miss Bartlett has also returned to duty after an extended leave of absence.

Among the late arrivals are H. F. Erd and L. D. Grace.

The annual reception and ball given by the Morse Mutual Benefit Association at Greenwood Hall on the evening of November 15, was one of the notable features of the present social season, and from the opening note of the orchestra until the last "good night" had been said, joy and good cheer reigned supreme. The success of the occasion was due to the untiring efforts of the entertainment committee, consisting of J. F. Calligan, George Derfus, W. S. Slover, W. H. Keer, A. L. Buchanan, J. E. Nieville and H. J. Beckmeyer.

The programme was replete with a choice selection of music and such dances as fill the heart of terpsichorean lovers with delight.

Refreshments, consisting of ice cream, cake and lemonade, was served freely to all who cared to partake.

Among those present were noticed the following: Mr. and Mrs. Frank Minning, Mr. and Mrs. John Garner, Mr. and Mrs. J. F. Colligan, Mr. and Mrs. A. H. Brockman, Mr. and Mrs. M. L. Cook, Mr. and Mrs. J H. Beckmeyer, Misses K. E. Creighton, Mayme Johnson, Katherine Koehler, Katherine Litherland, Eda Emigholz, Messrs. W. S. Slover, W. J. Connelly, J. H. Hohnsteaht, George Derfus, W. H. Keer, Walter Fallon, William Holtz, H. F. Erd, A. M. Creighton, John Pons, O. H. Steedle, H. L. Duckett and J. C. Rogers.

There were many friends of the members present not directly identified with the craft. All apparently enjoyed the evening's entertainment.

INDIANAPOLIS, IND., WESTERN UNION.

In the absence of Assistant Chief Operator Sim Fulton, who is in Phoenix, Ariz., for the change of climate, seeking better health for his wife, the official staff of this office is now as follows: J. M. Taylor, chief operator; F. E. Coit, assistant chief operator, formerly wire chief; M. S. Allen, wire chief, formerly quad chief; Washington Price, quad chief, formerly traffic chief; Carl Steinhauer, traffic chief, formerly assistant traffic chief; Fred C. King of night force promoted to assistant traffic chief. "Hi" Henry of the Pittsburg office spent a few days recently with his Indianapolis friends.

PITTSBURG, PA.

Telegraphers are "queer," and more especially as regards their "mills". You want that "easy, gliding movement" which we have studied for your benefit. Let us rig you out with an excellent Second Hand Typewriter. Big stock for sale or rent. The Typewriter Exchange, 432 Diamond St., Pittsburg, Pa.

POSTAL.

So many changes have taken place in the personnel of this office during the past two years that a run over the roster will not seem out of place. A large number of the old time stars are enjoying lucrative positions among the broker firms of the city, while many have branched out into business channels other than telegraphic.

Later on your correspondent will make personal mention of a number of those who are remembered by their brilliant work. The branches will also be taken care of, and we will try to make the monthly or semi-monthly letter from Pittsburg interesting not only to those locally concerned, but also to those on the outside.

Manager Kimmey has had incandescent lights placed on all of the city circuits. The service on these circuits has been greatly benefitted by the use use of the lights, as a flash of them guarantees prompt attention.

An addition has been made to the fuse board, providing for fifty wires.

The building of the twenty-eight-story Frick structure adjoining the office necessitated the temporary running of overhead cables. Foreman Ryan has just completed the rerunning of the permanent cables, and matters have assumed their normal condition.

The office force, as it now stands, includes the following: L. Lemon, superintendent; Edson Kimmey, manager; A. M. Smith, chief operator; H. J. Colebrook, wire chief; John W. Lapp, repeater chief; W. H. Graham, assistant repeater chief; J. A. Walker, leased wires; J. A. Larimore, traffic chief; A. W. Rinehart, night chief operator; G. W. Dull, assistant night chief operator; D. F. Lloyd, night repeater chief, and G. O. Morse, all-night chief.

Operators of the day force: H. A. Toms, W. J. G. Cooper, W. R. Hall, J. W. Davis, J. N. Shannon, W. H. Torrence, W. F. J. Craig, T. E. Roon, A. W. Naylor, T. H. Lawler, W. J. Crozier, L. R. Kerins, B. S. O'Neil, Miss Florence G. Logue, M. L. Swinger, D. J. Morgan, J. G. Jenkins, Frank C. Barr, M. F. Leahy, H. F. Stuckrath, E. M. Love, J. F. Morris, W. H. Page, J. M. Russell and A. B. Lafferty.

Miss Alice A. Trill is stenographer to Superintendent Lemon and Miss Della M. Black is stenographer to Manager Kimmey.

Operators of the night force and split trick are:

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F. E. Chaffey, in charge at the Dispatch; G. F. Shade, in charge at the Tri-State; R. J. Stewart, in charge at the Commercial-Gazette; G. L. Hoff, P. J. McPike, R. K. Lees, M. J. Finnegan, M. C. O'Brien, R. N. Reynolds, E. D. Walker, F. C. Dugan, Thomas McCauley and J. A. Quigley.

Day checks: Miss Georgie Thompson, Miss Laura Stewart and Master W. H. Kane.

Day file clerk, Gus Lintner; Homer Brown, night check.

Receiving department: T. G. Davis, cashier; Charles Gabig and William Pennell, bookkeepers; Elmo Green, collector; Miss B. M. Loury and Miss Elizabeth Davis, counter clerks; George Flemman, night receiver; Walter Sawyer, office boy.

Delivery department: George W. Deal, chief clerk; Thomas Miller and Thomas Higgins, assistants; William Dugan, signal clerk.

Andrew Crozier, night delivery clerk; Chester Quinn, assistant; Frank Weaver, all-night clerk.

MONTREAL, QUE., GREAT NORTHWESTERN.

Robert Kane has been promoted to the fast market wire. David Barclay has replaced him on second Toronto.

John Moore has resumed his regular duties on the Halifax duplex.

Chief Operator James Baclay, of Quebec, was a recent visitor to our office.

Wire Chief R. E. McCord, has returned from his vacation in excellent spirits.

It is with pleasure that we welcome Herbert Keating back in our midst after an illness of several weeks. He looks fine.

Leslie Hall is the latest addition to our staff.

George Gittus is back with us again after spending the summer at Banff Hotel, Northwest Territory.

Although the greatest secrecy has been observed, it is now stated that Mr. John Baker has married a Montreal lady.

Mr. Albert Ross has quit working extra in our office owing to the rush having ceased and new men having been taken on, and is subbing in Canadian Pacific Railroad.

William Buckingham is subbing in our Peel street branch.

Chief Operator Walter Graham has installed a set of repeaters in Prescott, Ont.

INDIANAPOLIS, IND., POSTAL.

Chief Operator John Looney, has been away on his vacation. During his absence Night Chief John Dobson took his place, Chief Operator Frank Fuller acting as night chief.

NASHVILLE, TENN., WESTERN UNION.

S. E. Elliott is the proud father of a little daughter, who arrived recently. William Musgrove is quite a gymnast, being a class leader of the Y. M. C. A. Felix Houston is receiving Scripps-McRae for our new (Democratic) paper, the Daily News. The veteran telegrapher, N. J. Gibson, Sr., is still at Market street office. Harry Musgrove has charge of the Maxwell House office. Lee Bradford and Hickman Gibson are at the Union station. Herbert Shea was recently rewarded for his diligent practicing by being promoted from file clerk to the Tulane Hotel office. J. H. Lewis is in charge of the American office. While there are fewer changes in our Nashville office than any offce of the same size in the United States, it may be of interest to the readers of the Telegraph Age to mention the personnel of the office: Mr. A. H. Stewart, chief; Neil S. Brown and William G. Pfingstay at the board; H. B. Geer, traffic; Night—E. W. Morgan, chief; R. Purcell Cowardin at the board; R. H. Hunt, traffic; W. C. Atkinson, all night, and J. O. Newman, Sunday; John F. Fleming, W. Edward Campbell, William B. Gillespie, A. Boyd Durrett, J. A. Crawford, Ozro and Robert G. Stanley, Robert L. and W. H. Redford, N. J. Gibson, Jr., William Knoch, Lawrence Brennan, Thomas B. Adams, W. F. Burton, Thomas E. Durrett, William McKinney, Stanley (Dan) Norton, J. D. Hester, A. M. Smith, William Musgrove, Martin O'Shaughnessy, S. E. Elliott, J. E. Cox, Edward Jenkins, Mrs. A. R. Halley, Misses Mamie and Maggie Costello, Miss Bessie Sullivan, Miss Ellen M. Morris, Miss Mamie T. Fleming, John R. Newton, William Rich, C. A. Acton, J. N. Brist, R. P. Jay, C. F. Mann, J. K. McCants, John F. Haas, Paul Rainey, W. L. Mounce, John L. Ridley and E. F. Dempsey. To give a little idea of the excellent office we have under the supervision of our chief, A. H. Stewart, a new arrival remarked the other day that he had been trying for ten years to get to Nashville. He has been here several weeks, has bought him a home and has decided to stay.

CHICAGO, ILL.

Typewriters bought, sold, rented and repaired. Renting a specialty. Also Agency for "Telegraph Age." Telegraphers' Typewriter Co., Room 5, 122 La Salle St., Chicago, Ill. Be sure to mention TELEGRAPH AGE.

SOMETHING NEW—no operator should be without. The Eacutt-Cawthern Typewriter Cleaner is a simple little brush; can be inserted in machine in two seconds, type thoroughly cleaned in 30 seconds without soiling fingers. Formerly required 15 minutes, and soiled and inkstained fingers. Price 50 cents, postpaid. Agents wanted. Eacutt and Cawthern, Room 704, 86 La Salle St., Chicago, Ill.

WESTERN UNION.

Our chief operator, L. K. Whitcomb, looks refreshed, having spent a couple of weeks among the fishing waters in Wisconsin.

Ray Finley of Maumee, Ohio, took a flying trip to Chicago and spent Sunday with his father, C. H. Finley, assistant chief operator.

Mr. and Mrs. O. T. Rullman, were called to Red Banks, Mo., recently, on account of the illness of Mr. Rullman's father.

Superintendent J. J. Dickey of Omaha and Manager J. B. Twiford of Ogden, Utah, were recent visitors here.

Miss Teska of the Rock Island Western Union office, recently visited this office and was introduced by Frank Donaldson, the loop chief.

C. F. Ireland of this office had both legs broken below the knees and was internally injured in the

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elevated railroad collision of November 19. His condition is critical and may terminate fatally. Profound sympathy is extended to his wife.

J. L. Martin is quite sick with pneumonia.

Morse Council gave the second of its winter series of entertainments on Saturday evening, November 9. It was a complimentary social hop to the members and friends, and was a decided success in every way. Their new hall was tested and found to be equal to all the requirements of terpsichorean entertainment. A large number enjoyed the occasion.

A son was born November 15 to Alfred Dickson, chief on the overland wire.

On November 23 occurred the fifth annual reception and ball given at American Hall by the General Meagher Council of the National Union. The affair was a complete success, largely due to the efforts of O. W. Montague of the bookkeeping department.

POSTAL.

Mr. John Smith has returned to work after a long absence occasioned by sickness.

Business continues good, and the extras are glad in consequence.

Dr. Ward and E. Soule are now working split trick, Mr. Slack going on straight days.

Mrs. Reynolds and Mr. J. Eagan are among the recent arrivals.

Mr. C. E. Herr has returned to work after an illness of two weeks.

CINCINNATI, OHIO, POSTAL.

Visitors: S. A. Duncan, assistant general superintendent, Atlanta, Ga.; P. C. Reyer, manager at Coshocton.

Changes: J. E. Nevill, night chief, who has been with the Postal for twelve years, left on November 16 to take a position with a brokerage firm. He has been succeeded by Samuel Sprong.

F. D. Wheeler and H. Stoker have left the Postal and gone with Haight & Freese Company, brokers.

TOLEDO, OHIO, WESTERN UNION.

Mr. C. D. Sweeney, the all-night wire chief, was married on November 5 to Miss Emma Nohl, of this city. Mr. and Mrs. Sweeney received the hearty congratulations of their many friends here. A handsome silver tea service was presented to them, beautifully engraved with the words, "From your telegraphic associates."

QUEBEC, QUE., GREAT NORTHWESTERN.

George Matthews has been transferred from the first Montreal quad to the Canadian Press wire, much to the regret of the Montreal operators. Michael Sweeney has replaced him on Montreal first.

George Alexander runs the first Montreal at night, John Sheridan having accepted a position in Sorel, Que.

"Sandie" Alexander has resigned the managership of the Parliament House office and accepted a position on the Great Northern Railway system.

Height & Freese, brokers, of New York, have opened an office here, and Mike MacKay is the operator.

Assistant Chief M. O. Reilley spent a few days in Bathurst and Port Daniel, Que.

J. H. Naulin, for the last ten years operator at Three Rivers station, has accepted a position here.

PHILADELPHIA, PA.

My motto — Honorable Dealing. D. A. Mahoney, special representative, main office Western Union, Philadelphia. Write for special Telegraphers' price and terms for the New No. 6 FAY-SHO typewriter. Specialties, $35 to $50 rebuilt Remingtons and Smiths. All makes rented $3 per month.

WESTERN UNION.

W. E. Durnin, who is as well known to the Washington fraternity as he is to us, was recently married to Miss Margaret Walsh of this city. Another marriage is that of E. F. Ramsey of this office to Miss Ida Garner of Reading, Pa. Miss Johnson who was with us for a number of years resigned recently and was married to Mr. Maurice Baskins, a wealthy coal merchant of this city.

W. Vance Compton, manager at Chester, Pa., for several years, has resigned to go with the Midvale Steel Company; E. J. Mullen has temporarily taken Mr. Compton's place. Albert Zintl, our six-foot check boy, has been promoted to be an operator at the Reading terminal, vice Richard Murphy, resigned.

A. P. Jones has been sent to Altoona, Pa., vice C. A. Howe, who returns to Washington, D. C.

Mr. J. D. King, who was recently appointed chief train dispatcher of the New York, Philadelphia & Norfolk Railroad, at Cape Charles, Va., has been again promoted, this time to chief clerk to Superintendent Rogers, vice J. W. Carroll.

E. A. Maaske has resigned to go to Jacksonville Fla., for this company.

H. A. Leavitt, who has been absent several months on account of illness, has again returned to duty.

Miss Clara Grimley and Miss Ella Hellings spent a week by the sea.

POSTAL.

The advent of a daughter into the family of Chief Operator Stimpson causes a satisfactory smile to light up his erstwhile beaming countenance.

It is not generally known, but this company is the gainer by the adoption of the ingenious device of Manager C. E. Diehl of Harrisburg, Pa., which adds to the utility of the common side of quad sets by using the forward stroke of the repeating local relay armature to record signals, instead of depending on the relay spring to record them in the old backstroke style.

By the resignation of Mr. J. F. Haughton the early morning force loses a good worker and Mr. Haughton secures a more desirable position with a broker.

Mr. W. T. McCorkle assists daily at one of the down-town broker's offices.

Among the recent conspicuous changes on the night force we notice Mr. C. E. Cox on the A. New York bonus wire, Mr. Kline on Pittsburg and Oscar H. Phillips permanently assigned to the North American.

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After many years' service with this company as manager at Lancaster, Pa., Mr. Robert Robinson has resigned to go into the stock brokerage business.

Manager Kirby L. Smith of Salisbury, Md., was married November 17.

Departure: F. E. Koehler.

LOS ANGELES, CAL., WESTERN UNION.

The installation of a Crocker-Wheeler dynamo and motor plant has just been completed in this office. The increase of business and consequent stringing of many new wires rendered the uncertain pressure derived from the thousands of gravity cells entirely inadequate, and the need of the much more reliable source of energy has been felt for some time.

The photograph of James E. De Long which appeared in the November 1 issue of Telegraph Age and the accompanying notice of his demise spread a wave of sorrow over members of the profession of Southern California. He was well known, and his death is much regretted.

Dr. C. S. Porter, well known in many of the large offices of the Western Union Telegraph Company, has accepted a lucrative position with the Esperanza Mining Company of Cedros Island, Mexico, as assayer. He also expects to establish a medical practice among the mining people. His many friends wish him every success in his new field of operations.

BOSTON, MASS.

Typewriters for sale, to rent and repaired. Remington, Smith, Densmore and all makes sold or rented on easy monthly terms to telegraphers. Send for samples, catalogues and full information to E. M. Bennett, Manager, The Typewriter Exchange, 38 Bromfield Street, Boston, Mass.

NEW YORK CITY.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left on the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all makes—sold, $1.00 per week. B. L. Brannan, 195 Broadway, New York.

POSTAL.

Assistant Night Manager D. F. Mellen is away on his vacation.

Messrs. R. F. McKune and F. E. Wheeler have been absent during the last four weeks on account of severe illness. They are now recovering.

Miss Jean M. Black, manager of the Western Union Telegraph Company, at Poland Springs, Me., was a visitor recently, and was entertained by some old friends here.

A large number of scholars from some of the city public schools paid this office a visit recently and were entertained by Quad Chief Glen Newman, who escorted them through the operating department. They were highly interested and pleased with all they saw.

The following named now constitute the piece work teams here:

Buffalo wire, Messrs. Good and Perrin.

St. Louis wire, Messrs. Heath and Hibbitts.

Boston wire (days), Messrs. Price and Murphy; (nights), A. L. Ewing.

Pittsburg wire (days), Messrs. Harper and Kehos.

Chicago wire (days), Messrs. Goodwin and West; (nights), Messrs. Whittaker and Applegate.

Philadelphia wire (days), Messrs. Bauman and Rhodes; (nights), James Driscoll.

Resignations: Miss Lizzie Leahy, G. A. Agnett, R. J. Rutherford and T. Byrne.

The following named persons are on the waiting list: J. T. Fot, E. B. Thompson, C. C. Main, F. A. Shandley, J. F. Hannigan, C. Bossler and F. A. Bates.

Mr. Henry Scrivens, chief clerk in General Superintendent E. G. Cochrane's office, was married on November 20. His numerous friends extend hearty congratulations.

WESTERN UNION.

At the entertainment and ball to be given by the Telegraphers' Aid Society at the Lexington Avenue Opera House, December 6th, Mr. T. A. Brooks, Chairman of the Entertainment Committee, states that he has made arrangements with professional talent, and the features of the entertainment will highly commend themselves to all. Mr. Brooks predicts that this will be the best "show" that the society has had in years, and from his long experience in this line his prediction will doubtless be realized.

Miss Eleanor Ohlandt, of the Eastern Division, spent a week in Washington, D. C., with friends.

Edward F. Cummings, formerly night manager of this office, has so much improved in health that he has returned to New York. He has been elected a director of the Serial Building Loan and Savings Association to fill the vacancy caused by the resignation of Mr. E. W. H. Cogley.

How's This?

We offer One Hundred Dollars Reward for any case of Catarrh that cannot be cured by Hall's Catarrh Cure.

F. J. CHENEY & CO., Props., Toledo, O.

We, the undersigned, have known F. J. Cheney for the last 15 years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by his firm.

WEST & TRUAX, Wholesale Druggists, Toledo, O.
WALDING, KINNAN & MARVIN, Wholesale Druggists, Toledo, O.

Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price 75c. per bottle. Sold by all Druggists. Testimonials free.

Hall's Family Pills are the best.

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Mr. James T. McCormack is quite ill at home.

New appointments: W. J. Calveet, J. D. Thomas, F. A. Post.

Resigned: J. W. Hartigan, J. M. Morgan, J. C. Dolive, H. L. Dolive, L. F. Bannon.

There is considerable talk regarding the pension system, especially among the old-timers, referred to in the last issue of TELEGRAPH AGE.

The sympathy of his friends is extended to Mr. Herbert Smith, chief clerk in Superintendent Humstone's office, on the death of his aged mother, who was run down and badly injured by a fire engine in New York city a week previous, the result of which caused her death.

Mr. Frank A. Stumm, an old-timer, having charge of the gallery nights, has been ill for three months.

Mr. Charles C. Murphy, brother of Frank D. Murphy, this office, has just returned from a prolonged trip in Spain.

Mr. W. B. Purcell, of the loop switch, is at the Presbyterian Hospital for a couple of weeks for a slight operation.

Miss Mamie May, of the city line, has gone to Jacksonville, Fla., for the winter.

Mr. John R. Heidemark, wire chief Southern switch, is on a vacation.

Mr. Charles Loops, of the night office, has the sympathy of his friends on account of the death of his father, which occurred at Kinston, N. C., November 17.

Pat and the Anarchists.

They stood outside One Ninety-Five,
  Famed meeting place—Broadway and Dey—
The place where telegraphers hive
  And strive, by night as well by day.

They mustered there a dozen strong,
  To have a little friendly chat.
The New policeman came along;
  No anti-Devery man was Pat.

Though he'd been shifted from his beat
  On Forty-second street that night,
And now he burned to do some feat
  To square himself, and "make it right."

He slowly strolled along the pave,
  As Trinity chimed one o'clock;
"Th' bhoy" was feeling mighty brave,
  And hummed "The Babies on our Block."

The gossipers ne'er saw him stand
  (They were too busy talking "shop")
Upon the corner, mute and grand;
  He looked the part—did Pat, the Cop.

"Whisht!" And he gazed down gloomy Dey.
  "A dozen av thim—'s I live!
They're whishperin', too: w'at's thot they say?
  'McKinley's roast'—Oh, what th' div—!!

"They'se Anarchists! Now here's me chance!"
  And Pat stepped in a doorway quick;
He eyed the group with startled glance,
  And also tighter grabbed his stick.

"They sent Ca to Buffalo——
  ("That's ivvidence, me lad," thought Pat.)
"The best they have in A, y' know.
  ("More ivvidence, ye murtherin' brat!")

"You bet, he's well up in the code.
  ("Th' code, b' cripe's th' thing fer me!")
"When he sat in—well, he just showed
  Those Bu hams weren't 1—2—3.

"His Morse was great, 'twas out o' sight—
  ("A furrin name—Oi'll putt it down.")
"Greased lightning and pure dynamite.
  ("D'ye hear that now—Oh, Garry Owen!")

"If he'd got in right at the start,
  The Postal would have got no biz.
He almost broke Bx's heart,
  You'd ought to hear his Phillips whizz!"

And then another voice was heard:
  "They're sending him to Wa
For Teddy's 'message.' 'He's a bird'—
  So Brinnan said the other day!"

" 'So Brinnan ses,' " repeated Pat.
  "They're goin' t' slawter Roosevelt nixt.
Who ivver h'ard th' loikes av that,
  'So Brinnan ses'—they must be mix't.

"Who ivver see an Oirishman
  Mix't up wid sich a divillish job,
Fit fer a Dago Omadhaun;
  But Brinnan—nivver!! Naw b' gob!

"I 'r-r-rist y' all!" and Pat stepped out.
  "Ye's murtherin' villains; ye's gallus cheats!
Ye's Anarchists!" He raised a shout
  That echoed through the empty street.

It took the gang of split trick men
  An hour, with steady argument
To work that cross off; even then
  The officer was not content.

"Don't do 't ag'in!" was what he said;
  And now the gang when talking "shop,"
Avoid all reference to Ted,
  And keep an eye on Pat, the Cop.

—B. A. MACNAB.

Montreal.

Pensions for Telegraphers.

Editor Telegraph Age:

In view of the fact that Mr. Andrew Carnegie favors the formation of a pension fund for aged and invalid telegraphers, it would be a good idea for the Old Time Telegraphers' Association to appoint a committee and confer on the subject immediately. Your suggestions printed in the last issue of Telegraph Age are fortified by corresponding suggestions held by many members of the profession.

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The pension system will meet our purposes infinitely better than a "pauper's" home for self-respecting operators, rendered incapable of providing for their wants by age or infirmity. Our aim should be to assist those who by misfortune can no longer earn a living, and at the same time avoid dealing out the humiliation that pains a worthy beneficiary, who is compelled to end his days in a charity institute.

By subscription a member of a pension society buys a right for care at an opportune moment; he is not really a charity subject, and in this fact has no occasion to look upon himself as a public dependent, therein maintaining a just and encourageable pride.

Your observation regarding the shifting positions of telegraphers, promising unusual difficulty in adjustment of pensions, does not appear to be important. The avoidance of any complications on this score will be easily settled on familiarizing ourselves with the systems of the insurance companies, information readily obtained from available expert sources. The only points to be determined are conditions of membership for our proposed society, and the years and infirmities establishing an indigent eligibility of the applicants for stipends.

Very respectfully yours,
W. A. HENNESSEY.

New York, November 21, 1901.

Editor Telegraph Age:

Your valuable article quoting correspondence between Mr. Carnegie and Mr. Connolly of Pittsburg on the subject of a Home or of a pension fund for old and indigent telegraphers, puts this matter, which of late has been more or less vaguely stated, in a clear light.

The scheme for a home has, it appears, after full consideration, been declared impracticable, and is not the scheme for a pension fund equally so?

Such a plan presupposes three important requisites: First, that the employees should contribute from the time of entering the service until a certain stipulated age, say, 65 years; second, that the commercial telegraph companies should contribute in bulk about an equal amount to that contributed by all the employees; third, that a nucleus fund should be donated from outside sources, or contributed by the first two, in order to launch the project.

Now, as it is evident, in order to attain any degree of proficiency, the art of telegraphy must be acquired at an early age; large numbers of young people of both sexes enter the service, many of whom become operators of various grades, others branch off into the clerical and other service required by the companies, while many leave and take up other vocations.

The young operator, after assignment, generally commences to cast round for an opportunity to improve his position, either by seeking other business, or going to other points than the one first entered, and as up to this stage the remuneration is necessarily small, it would be impracticable, as well as grievously unjust to tax these people for a contingency to which only a very insignificant number could by any possibility hope to attain, while to leave to each individual to voluntarily join such a scheme would be futile.

It is probably only after a service ranging from five to ten years, that the average operator commences to think of the future and takes membership in the insurance, aid and other societies which he finds at hand and ready to welcome him, but which he joins voluntarily and without the slightest compulsion from any source; and he is equally free to leave the service and retain his membership, or to resign, or lapse, after having received the protection afforded during its continuance, while contributions to a pension fund in such case would be forfeited, without any equivalent having been received.

Is it not, therefore, along the line of the societies as at present existing that Mr. Carnegie's propositions, if applied, would be found to be most useful?

The two insurance organizations in the telegraph field, the Telegraphers' Mutual Benefit Association and the Gold and Stock Life Insurance Association, have disbursed in benefits to the heirs of deceased telegraphers about $900,000 to the former and about $70,000 to the latter, at an average cost to each member of about $1 per month for each $1,000 insurance, while the New York Telegraphers' Aid Society has disbursed about $50,000 in sick and burial benefits at an average cost to each member of about $6 yearly.

The membership of all three is about 7,500 (there being many joint members), and there is a surplus fund of about $220,000. It is largely due to the revenue from this fund that the societies are enabled to offer their advantages at such small charges, but as they progress, they are confronted with the problem that their members are growing older in average age, and the cost is steadily but surely becoming greater, although it will probably never become very heavy.

Other aid societies throughout the country are also doing a noble and effective work in this direction.

Were Mr. Carnegie to endow a fund the proceeds of which would be paid over to all such telegraph societies, insurance and aid, in proportion to their numbers and extent of their usefulness, it would serve as an addition to the present reserve held by each, and thus they would be enabled to maintain or perhaps reduce their present rates, or to enlarge their benefits, and thereby attract to their membership a much larger number of the telegraph workers than they are doing at present.

"MEMBER."

New York, November 23, 1901.

New York Visitors.

Mr. H. B. Perham, of St. Louis, Mo., president of the Order of Railroad Telegraphers.

Mr. J. W. Tillinghast, manager of the Western Union Telegraph Company, Buffalo, N. Y.

Mr. Joseph W. Kates, general superintendent of the Postal Telegraph-Cable Company, Richmond, Va.

Mr. W. H. Young, night manager of the Western Union Telegraph Company, Washington, D. C.

Mr. Geo. S. Williams, manager of the Postal Telegraph-Cable Company, Foxboro, Mass. Mr.

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Williams is a member of the State Legislature, and is otherwise prominent in Massachusetts politics.

Mr. C. R. Tracey, manager of the Western Union Telegraph Company, Wheeling, West Virginia.

Mr. G. O. Perkins, superintendent of Telegraph, Mexican Central Railroad Company, City of Mexico, Mexico.

Mr. Joseph Uhrig, formerly of the Western Union Telegraph Company, Chicago, Ill., and now in the marble business in that city.

Mr. J. D. Flynn, superintendent of the Western Union Telegraph Company, Pittsburg, Pa. He came to New York to attend the funeral of his old friend, M. H. Redding.

Mr. E. A. Smith, superintendent of the Boston and Maine Railroad Company. S. A. D. Forristall, superintendent of telegraph of the Boston and Maine Railroad Company. E. B. Pillsbury, superintendent of the Postal Telegraph-Cable Company, and J. P. O'Donohue, chief operator of the Postal Telegraph-Cable Company, Boston, Mass.

Personal Mention.

Mr. E. C. Bradley, vice-president of the Postal Telegraph-Cable Company, New York, has returned from a business trip through the South.

Mr. Andrew Carnegie, the old time telegrapher, has been elected Lord Rector of the University of St. Andrews, Scotland. Mr. Carnegie is undoubtedly the first telegraph messenger and operator to attain this high distinction.

Mr. O. S. Wood, the oldest telegrapher in the world, and the first student on the first telegraph line ever constructed, which was erected between Washington and Baltimore, in 1844, was a recent and welcome caller at the office of Telegraph Age.

Mr. Charles H. Erwin, assistant superintendent of the Western Union Telegraph Company, New York, has been placed in charge of the district lately presided over by M. H. Redding, deceased. Mr. Erwin's district now covers all the branch offices in the entire city of New York.

Mr. P. V. DeGraw, who for four years past has been managing the Philadelphia business of the Columbia Phonograph Company, has resigned to accept a position on the Cincinnati Enquirer, with headquarters in Washington, D. C., where, prior to September, 1897, Mr. DeGraw had served with distinction upwards of twenty years, in telegraphic, press association, and general newspaper work—fields in every way congenial. Upon his retirement from journalism to accept a very attractive offer from the Columbia Phonograph Company, Mr. DeGraw entered an entirely new line of work never previously having had experience in commercial life. That his services were successful and highly appreciated by his associates can be best attested by quoting from President Easton's letter, as follows:

"In accepting your resignation as manager of our Philadelphia office, to date from November 1, I take this opportunity of expressing my cordial appreciation of your devotion, industry and loyalty to the interests of the company and my official and personal regard. You will carry with you to new fields of endeavor the very best wishes of all your associates in this service, and especially of

Yours very truly, F. D. EASTON.

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We are able to announce on good authority that the Pennsylvania Railroad Company has adopted the Delany System of Automatic Telegraphy. The system has been in practical operation between Philadelphia and Altoona for the past month, carrying regular business, and the results obtained have been satisfactory in the highest degree. This undoubtedly marks the beginning of a new era in American telegraphy, and a rapid extension of this new method may be looked for. It is well worked out after years of persevering effort by the inventor, Mr. Patrick B. Delany, a practical telegrapher, who knew what was needed. Those who saw the system in operation at the Pan-American Exposition were not surprised at its being awarded the gold medal.

The Cape (Good Hope) Government some time ago sent an official to London, England, to engage telegraphers for the colonial service, and it is now announced that 250 Government telegraphers, all first-rate operators, have been engaged for the South African service.

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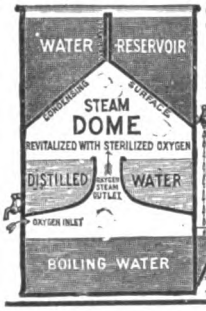
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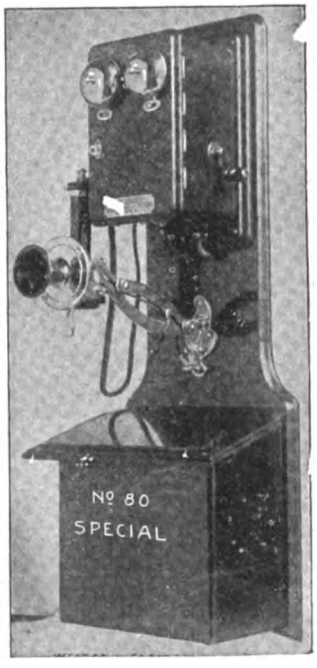
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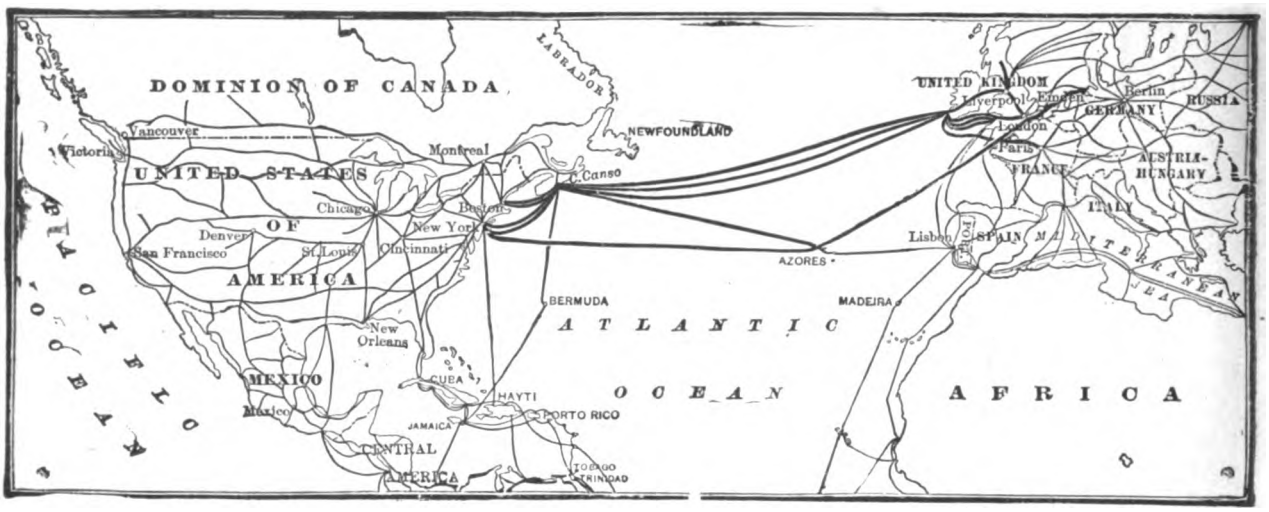
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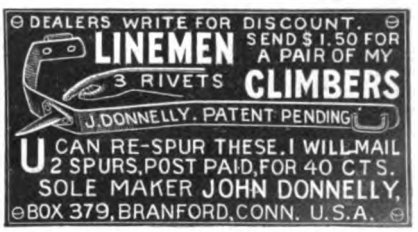
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1902 ANNOUNCEMENT.

FOR MORE THAN EIGHTEEN YEARS TELEGRAPH AGE has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other, and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. THEY HAVE BEEN INVALUABLE TO THE ACTIVE OPERATOR AS A PRACTICAL AID IN HIS DAILY EMPLOYMENT. The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth more than the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, the quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of TELEGRAPH AGE have come to be regarded as works of reference. They will increase in value as time goes by.

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TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call attention to this matter? A sample copy will be sent free to any address on application.

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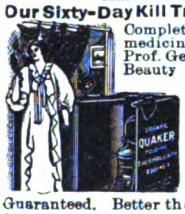


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THE TELEGRAPH AGE.

No. 24. NEW YORK, DECEMBER 16, 1901. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

The Equipment of a Modern Telegraph Office.

(Continued.)

BY WILLIS H. JONES.

[In a few months hence this series, together with the most valuable of the articles appertaining to the duplex, the quadruplex, storage battery and other telegraph matters, which have appeared in this journal during the past three years under the caption of "Some Points on Electricity," will be published, and the book substituted for "Pocket Editions of Diagrams," by Willis H. Jones. Those desiring a copy of the new book should send in their names at once.—Editor.]

When the various main wire switchboards have been erected and arranged in suitable positions in the operating department, one would naturally conclude that the work was completed, and that all that yet remained to be done in order to connect the external circuits thereto is merely a matter of bringing the latter up bodily from the cellar and binding them to the springjacks.

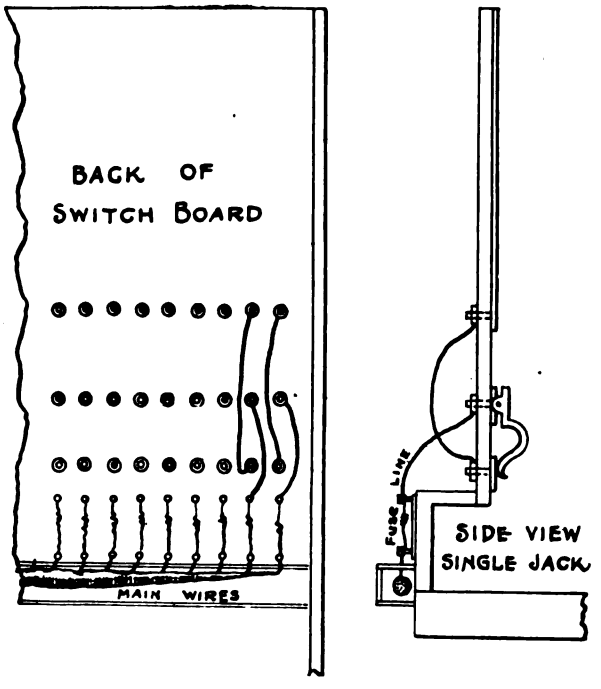
This idea is erroneous. In practice all main wires, loops, and other external circuits end, or rather, begin in the cellar, or at least, where they enter the building.

At that point they should all be connected to one common, or general switchboard from which device special conductors radiate to the springjacks in the main switches upstairs. These linking conductors should not take the number of the external wires which may be temporarily connected to them, but be given separate marks for identification, and a record of their numbers and positions kept in a book for reference.

It will be seen that these conductors are in reality part of the switch wiring and therefore permanent fixtures, while the main and the cellar boards are consequently in a manner practically one and the same device—one being the extension of the other.

To the wire chief, however, each springjack and conductor is known by the number of the external circuit temporarily attached to its distant terminal in the sub-switchboard, and is so labeled.

Thus if, say wire No. 10 east, be connected to a certain conductor in the cellar, the springjack in



the main office board, to which the other extremity of that conductor is connected, would be temporarily known as No. 10 east, but should, say 20 east, be substituted in the cellar for No. 10, the same jack and conductor would then become No. 20 east and the tablet must necessarily be changed.

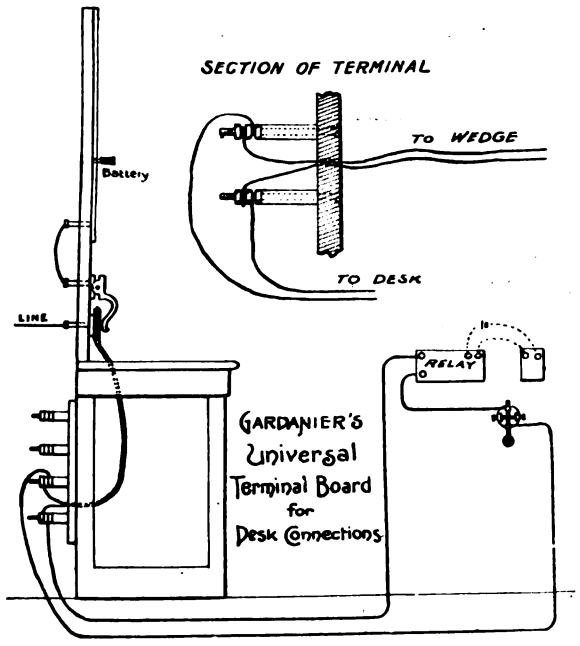
Where there are two or more main wire switchboards in the operating department, it is customary to bring the conductors up from the sub-switch in separate cables containing 50 or 100 strands each of about No. 16 gage insulated copper wire, the whole well taped or otherwise protected.

After a cable has been drawn lengthways across the full width of the board from behind, and laid

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in close proximity to the row of springjacks, the free end of the cable should be gradually unraveled and the strands distributed and connected to the fuse holders of the various jacks assigned for their reception, as shown in the first accompanying cut. As the latter are situated side by side in regular rotation, the unraveling of the cable offers a method of making such connections in the neatest possible manner.

The next move is to connect the flexible cords, to one end of which the wedges are attached, with the conductors leading to the loops and the desk instruments throughout the operating department. One would naturally think that this was a very simple problem, but to make such connections properly and systematically it is first necessary to arrange a suitable device for the operation. This device consists of one or more long boards, perforated with holes for the cords, the rows and numbers of which orifices correspond with those in the



shelf or main switch desk, through which latter the wedge end of the cords come up.

By this method the location of the other terminal of any given cord may immediately be found by noting the number of the row and hole in the lid through which it comes up. The corresponding number behind the board will show the exact spot where the connection is made. Between each pair of holes in this board is a wooden extension pin to which both terminals of flexible cord and the conductors leading to and from the loops and desk instruments are metallically joined by means of three metal disks, as shown in the illustrated cut. This diagram shows Mr. George W. Gardanier's universal switchboard arrangement for connecting flexible cords with loops, desks, and other apparatus. It is self-explanatory so far as the connections are concerned and no one should fail to make such connections properly. The chief feature of the device is the extension pins which hold the cords permanently in a position which will prevent twisting where the joint is made, the pull being always in the same direction.

(To be Continued.)

Business Notices.

"That chap's a fine sender." "Why wouldn't he be, he uses a 20th Century Telegraph Key." Address Foote, Pierson & Co., 82-84 Fulton street, New York.

The Gordon Battery Company, now at 13-15 Laight street, New York, will remove on January 1 to the premises Nos. 439-445 East 144th street. The necessity for more room in which to handle their increasing business is the occasion for this change. The entire plant of the company will be concentrated in the new quarters.

Mr. O. T. Anderson, one of our enterprising Chicago agents, who is also in the typewriting business, has lately consolidated his interests, conducted under the name of the Telegraphers' Typewriter Co., with those of the Chicago Typewriter and Supply Co., at 122 La Salle street, Chicago. Mr. Anderson will have charge of the department dealing with telegraph operators.

The Electric Storage Battery Co., of Philadelphia, Pa., is distributing a beautifully illustrated pamphlet describing the uses to which the storage battery is now applied. That portion of the book covering telegraphy shows illustrations of a storage battery for fire alarm, police telegraph and municipal work, this branch of the service being as readily covered by this system as is the telegraph, electric lighting and all other branches comprising the electrical field. Copies of this book may be had on application.

THE TYPO-TELEGRAPH.—The typo-telegraph, a printing telegraph system which has been in operation for many months past on the lines of the Long Island Railroad, Long Island City, N. Y., has so pleased the inventor, Dr. G. A. Cardwell, and the railroad officials, who indorse it as a very useful and efficient system of telegraphy, is described in a neat brochure which is now being distributed. The typo-telegraph can be operated over any distance and may include a number of intermediate stations. It is a one-wire system and will transmit at a speed exceeding the skill of an expert typewritist. The apparatus is operated by a keyboard similar to those found on the usual typewriting machines, and the receiving at the distant end is in typewritten form. This invention can be seen in actual operation at any time in the office of Mr. L. S. Wells, superintendent of telegraph of the Long Island Railroad at Long Island City, N. Y.

Many foreign governments are considering the advisability of teaching telegraphy to their naval officers so that they may be competent to successfully handle the wireless telegraph system when it shall be introduced into the navies of the world.

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General Mention.

Mr. George C. Zachow, of the Western Union Telegraph Company, at Milwaukee, Wis., was married on October 30 to Miss Elizabeth E. Johnson, of Janesville, Wis.

Mr. J. A. Ridgely, an old-time telegrapher, for the past three years soliciting freight agent of the Louisville and Nashville Railroad at New Orleans, has been appointed general agent of the company at Chicago, Ill.

Mr. Omar H. Bartlette, general agent of the Louisville and Nashville Railroad at New Orleans, La., and well known among the telegraphic profession of the South, was married on November 30 to Miss Georgia Maybin, of the Crescent City.

Mr. John J. Kelly, operator for the New York Herald at the Nantucket lightship, is a subscriber to this journal. We expect soon to have quite a subscription list among the members of the fraternity employed on ocean steamships, operating the wireless telegraph system.

Mr. James H. McCalla, of the Postal Telegraph-Cable Company, Birmingham, Ala., was married November 27 to Miss Allie E. Edwards, of Childersburg, that state. His office associates remembered their friends with a handsome silver service, which was tendered with hearty congratulations.

Mr. John A. Townsend, manager of the Western Union Telegraph Company, at Dunkirk, N. Y., a veteran telegrapher, but up-to-date in all particulars, will soon occupy a new main office, which will be located in the new post-office block. It will be the most modern telegraph office between Buffalo and Cleveland.

Mr. E. M. Ringler has been appointed manager of the Canadian Pacific Railroad Company's telegraphs at Ashcroft, B. C., succeeding C. A. Shaw, who was in charge for the past three years. The importance of this office has been greatly enhanced since the opening of the Government telegraph line to Dawson, Yukon.

The land lines to connect the shore end of the Pacific cable, the first section of which will be laid in January, 1902, at Cape Beale, Vancouver Island, and Nanaimo, will follow the wagon road from that town to Alberni and will be carried thence to Cape Beale by as direct a route as possible. It is proposed to cut out a road 120 feet wide to prevent any breaking of the wire by falling trees. Superintendent Wilson, of the Canadian Pacific Railroad Company's telegraphs, is looking after the work.

Nothing reveals the cosmopolitan character of the city of New York more forcibly than the sign of the Western Union Telegraph Company displayed at the corner of Bayard and Mulberry streets. The title of the company on the familiar blue background is in English, while below it appears in both Italian and Hebrew. Doubtless the sign attracts more readers of the two latter nationalities than of English-speaking people, for the location is in the heart of the Italian and Hebrew quarter. Within the little corner office, resonant with the click of the telegraph, a banking, express, and ship-passenger business is also transacted, and a visit therein at almost any time discloses a crowd of gesticulating and loud-speaking foreigners, the scene, as well as the section in which it is found, being decidedly un-American.

"Six months ago Chicago had 30,000 telephones, to-day she has 40,000, and within the next two years we will install instruments that will bring the total number of subscribers up to 100,000."

This is the way that President John I. Sabin, of the Chicago Telephone Company, tells the story of the enormous increased number of telephone subscribers in that city. The tremendous growth is in great measure due to the system of placing of 5-cent telephones throughout the city.

Mr. Sabin is an old-time telegrapher, and his success in the telephone field is viewed with pride by his old associates of the key.

New York Visitors.

Mr. George Hoyt, an old-time telegrapher, of Chicago, Ill.

Mr. H. B. Perham, of St. Louis, Mo., president of the Order of Railroad Telegraphers.

Mr. Thomas Roche, superintendent of the Western Union Telegraph Company, Boston, Mass.

Mr. Joseph W. Larish, electrician of the Western Union Telegraph Company, Boston, Mass.

Mr. H. J. Pettengill, of Boston, Mass., vice-president of the Michigan Telephone Company.

DYNAMOTORS WITH FLY WHEELS.—Mr. S. F. Jones, electrician of the electrical engineer's office, Postal Telegraph-Cable Company, New York, has just installed three dynamotors of the Sprague type, in the Postal Telegraph-Cable Company's office at Albany, N. Y.

The great desideratum in the operation of telegraph wires is to have the currents smooth and unvarying in strength, particularly for working the quadruplex circuits. The electrical engineer's department of the Postal Telegraph-Cable Company has paid attention to this feature for several years, only selecting such machines as possessed strong field and armatures with numerous segments. The method of testing to determine the suitability of a machine is by using a telephone receiver connected in the secondary of a suitable induction coil, the primary of which is in the circuit of the armature. With a smooth current similar to that of a chemical, or storage battery, the diaphragm of receiver is comparatively quiet. In the Albany machines an improvement in the current has been effected by the addition to the machines of fly wheels, which preserve uniform voltage under variation of load.

A subscription to TELEGRAPH AGE is one of the best investments a progressive telegrapher can make; it keeps him thoroughly posted.

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Personal Mention.

Mr. John W. Mackey, president of the Commercial Cable Company, New York, is in California on private business.

Mr. Chas. A. Tinker, general superintendent of the Western Union Telegraph Company, New York, is spending a brief vacation in North Carolina.

Mr. Robert C. Clowry, vice-president of the Western Union Telegraph Company, Chicago, Ill., has been visiting the Pacific Coast on one of his regular tours of inspection.

Mrs. James D. Reid, wife of the late James D. Reid, whose health has not been of the best for the past year, is at present sojourning at Nice, France, where the change of climate is greatly benefiting her.

Mr. H. D. Reynolds, superintendent of the Postal Telegraph-Cable Company, Buffalo, N. Y., who has been seriously ill with typhoid fever for the past thirteen weeks, is still reported to be in a critical condition. The duties of his office are looked after by Mr. L. Lemon, superintendent of the same company, Pittsburg, Pa., who divides his time in the two cities.

The resignation of Mr. Chas. J. Glidden, an old-time telegrapher, as president of the subsidiary companies of the Erie Telephone and Telegraph Company, which was placed in the hands of the directors several months ago, has now been accepted and Mr. Glidden has severed his connection from the management of these corporations. He remains as a director.

Another revolution has taken place in municipal politics at Pittsburg, Pa., and Mr. Morris W. Mead, chief of the electrical bureau of that city, who was swept out of office by the political upheaval of three months ago, has again been reinstated to his old position which he has held for so many years to the general satisfaction of all concerned. Mr. Mead's friends are rejoiced to learn of his reinstatement.

Mr. Frank A. Munsey, an old-time telegrapher, proprietor of the Munsey Magazine and other periodicals, has within the past two weeks launched into the daily newspaper field by purchasing the New York News and the Washington (D. C.) Times. Mr. Munsey accurately realized years ago what the masses desired in the way of magazines, and he furnished them. His ideas on the proper methods of conducting daily papers, are no doubt equally sound. It is understood that he intends to purchase newspapers in other cities, thus forming a chain of them which he proposes to control from New York city.

Mr. P. J. Tierney, for many years manager of the Central Cable office, New York, has, in addition to his regular duties, also been placed in charge of the regular Western Union office at 46 Broad street, as manager. Mr. Tierney has been identified since 1870 with the telegraph service of New York, of which he has always been a popular and respected member. His appointment to the managership of the most important branch office in the metropolis, it being located in the very heart of the financial section of the city, was received with delight by his numerous friends, who extend their sincere congratulations and best wishes.

A Decision of Interest.

The Missouri supreme court handed down a judgment of special interest upon a tax case on December 3. Similar cases are pending in other States, and the matter at issue is of interest throughout the country. The question upon which the Missouri court rendered judgment was whether a tax assessed upon the Western Union Telegraph Company by the Missouri board of equalization was legal. The contention of the company was that it is a corporation of Federal character, and therefore not taxable by the States. In the opinion of the court that contention is not warrantable. The court holds not only that the franchise is property, but that the company owning and operating it is taxable in the several States, in that proportion of its total value which is represented by that part of its line which is operated within the State imposing the tax. This case will no doubt be appealed to the United States Supreme Court.

Senator Mason's Idea.

Senator Mason, of Illinois, who is to be chairman of the committee on post offices and post roads, thinks that a good field for postal experiment is to be had in the use of the telephone and telegraph for the rapid transmission of mail. "It is believed by many," he says, "that a large share of the mail between New York and Chicago, short communications could be sent by telegraph or telephone, and delivered by the government for 10 cents and at a profit. A short message to New York, if put in the mail box in Chicago at 5 o'clock, would be delivered the next morning in New York by the regular carrier, whereas if it went by mail it would not reach New York until the next night and would not be delivered until the second morning."

If we understand the Senator's idea, he would provide in connection with the postal service and under its stamp for a cheaper use of telephones or telegraphs for long-distance communication in short messages than is now available under the retail tolls of the telephone and telegraph companies.

The Crehore-Squires system of diplex telegraphy is being experimented with on one of the Delaware, Lackawanna and Western Railroad wires between Hoboken and Dover, N. J. The diplex is similar to the phonoplex system, it being operated on a wire, without interfering with the regular traffic. This system requires an alternating current in its operation.

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Telegraphic Domination.

BY PHILIP H. FALL, OF HOUSTON, TEX., ONE OF THE OLDEST OF OLD TIMERS IN THAT STATE.

Mercantile affairs are inseparable and dependent upon telegraphy for its existence.

Lumber, oil, rice, sugar, and, in fact, every line of industry, depends upon telegraphic quotations each day for the consummation of deals, and the telegraphic columns of our great dailies are eagerly scanned for information most vital to the welfare of buyer and seller.

The sleepy old stage coach of our fathers, and even the lightning express mail, are relegated to the shades, being antiquated, out of date, for the conveyance of information for the mercantile world of to-day.

Steam is being fast supplanted by electricity. The civilized nations of the world are even more dependent upon telegraphy than commerce. Armies are moved and placed; the ships of the ocean watch the telegraphic weather reports, depending upon its accuracy for foul or fair navigation.

Railroad trains dare not turn a wheel without telegraphic instruction.

In ye olden time, when the reader and I were young, commodities of every description retained the same prices for lengthy periods, until such time as ships arrived from across the ocean, and the slow mail advised us that different articles had advanced or declined in value, while now, each day witnesses a rise or fall in prices.

Whether the swift communication is to the advantage of the human race is a question to be settled. It no doubt often gives fictitious values and admits of so much wild speculation to the detriment of thousands that many of us old fogies sigh for the olden time, when, we believe, the world was more honest than now.

There are those, no doubt, who are looking forward to some means of more rapid communication than that offered by the telegraph, but they will look in vain, for were a wire strung around the world and the other end arranged on the same desk where it started from, a pressure upon the key would cause a dot to traverse the distance around the earth in two and a quarter minutes. Twenty-five thousand miles in such a short time ought to satisfy even the bucket shop man. We, no doubt, have arrived at the acme of rapid communication. Texas is not behind any portion of the world in splendid telegraphic facilities. A perfect network of wires has been strung to almost every hamlet and saw mill within its broad domain and the lumberman, through his 'phone or telegraph wire is in rapid communication with all the world. What a contrast to a few years back! The farmer, the cattle man, the lumberman and denizens of small towns, unable to acquire this splendid system of communication, were entirely ignorant of appreciation or depreciation of their wares, and at the mercy of the speculator. They groped in the dark, as it were, and were often taken advantage of by the wide-awake manipulator. But the order of affairs is now reversed. There is no excuse for the manufacturer being taken unawares. He has the same facilities as the shrewd speculator, and need not be victimized as formerly. This view of the advantage or disadvantage, of telegraphy to the commercial world is in its favor, for it renders all upon a par as to the value of what they desire to buy and sell.

That great corporation, the Western Union Telegraph Company, with its 23,000 offices in America and cables across the ocean, has so reduced the price of telegrams within the last few years that it is not much of a hardship for any concern to use it. Each year witnesses still further reductions, and the writer is confident that soon its service will be so cheap that very few will use the mail.

Thirty years since a telegram of ten words, from Texas to New York, cost $5, while now it is 75 cents. From Texas to San Francisco, $10, while now it is only $1. A few more years, I am convinced that 10 cents will pay for a ten-word message to New York. Many large Texas concerns will no doubt have their own leased wires to every part of the state, and postage stamps and mail bags will be almost discarded by the heavy business men.

We are in a fast age, and we cannot repel the wave of what is called progress; let's get in the swim and add to its velocity by acquiescing in the conditions as we find them.

Let's be heroes in the strife, and not clog the wheels of improvement.—Southern Industrial and Lumber Review.

Australian Cable Soundings.

Mr. Isaac Robinson, United States consular agent at Norfolk Island, gives some interesting news concerning the Australian cable soundings. The British cable steamer Britannia arrived June 12 from Brisbane, Queensland, her work being to mark out a track for the new Pacific cable. On the passage across from Australia soundings were taken every ten miles. About 100 miles from the coast an obstruction was met with, a mountain or range of mountains coming right in the track, and a slight deviation south had to be made in order to clear it. Two thousand eight hundred fathoms was the greatest depth obtained, and 257 fathoms the shallowest, on top of the mountains referred to. It has been decided that Anson Bay, on the west side, is the best place to land the cable here. Anson Bay is six miles from the settlement of Kingston. A cable house is to be built close to the shore in the bay.

Norfolk Island will be one of the most important stations, as all messages to Australia and New Zealand will converge here, to be repeated. The Australian and New Zealand portion of the line will, it is stated, be completed by the middle of next year; the other portion, by the end of 1902.

"Well, I declare," shouted a man, "here's a telegram to my wife, and it reads '10 D. H. Frank.' I bet I'll find out who this fellow 'Frank' is before he is another day older."

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Recollections of Mr. Dugan.

George M. Dugan of Chicago, superintendent of telegraph of the Illinois Central, was in New Orleans a few days since.

Mr. Dugan is practically the father of the art of telegraphy in the south. He was born in Brown County, Ohio, in 1835, and in 1854 he had settled in Memphis as the sole operator of the Great National Telegraph Company.

"There was only one wire into Memphis," said Mr. Dugan to a New Orleans reporter, "and whenever it got in trouble I would hire a buggy and start out to find what was wrong. Often I drove miles into the country and repaired damages which had been inflicted by rain or wind. I was in New Orleans the year following, and at that time there was only one wire which connected that city with the rest of the country. I have a telegram which was sent in that year to one of my wife's relatives. The paper on which the message was written bears the likeness of a man, bearing in his hand bolts of lightning. This individual, with his fist full of forked fire, was the trade mark of the company."

Mr. Dugan was a comrade, in the days immediately following the war, of some of the most picturesque characters in the history of southern railroads. One of his partners was Barney Hughes, passenger agent of the old Memphis and Charleston, in the Bluff City. Mr. Hughes was also a telegrapher. He died a few years ago.

"Barney and Sam Carey, who was one of the most popular passenger agents New Orleans ever gave to the world," said Mr. Dugan in talking over old times, were wont to run together when they got in the same town. Once Sam was in Memphis and wanted to get back to New Orleans. Barney routed him via Grand Junction, Miss. He told Sam that it didn't make any difference whether he made connection at Grand Junction or not—that it was one of the garden spots of the earth, and that he would find the hours to fairly fly while he laid there.

"It was in summer, and a very dry, hot summer it was. Sam took his train, missed connection at Grand Junction and found himself confronted with the necessity of spending half a day there. He looked about him and saw nothing but railroad tracks, which were shimmering beneath the hot rays of the sun. There was nothing to do in Grand Junction and nowhere to go. He thought of the praises which had been heaped upon the station by Barney and finally sat down and wrote him a message, which he sent by wire. The message read:

"'Barney Hughes, Memphis: I wish you were in h—l.'"

"Barney got the telegram all right and lost no time in answering it. This was the message Sam received in reply:

"'I had rather be in h—l than Grand Junction.'"

Mr. Dugan, in hearking back over the old days, told a great story on Milton H. Smith, president of the Louisville and Nashville Railroad. When Mr. Smith was growing up he earned his board in Holly Springs, Miss., by minding the door of the railroad eating room kept there by Joe Buffalo. It was his duty to take the meal tickets of those who wanted to feed.

"Joe Buffalo left Holly Springs," said Mr. Dugan, "and after many years was settled in New York. He had lost sight of Milton H. Smith, who in the meanwhile had risen to the position of president of the Louisville and Nashville, after having secured a small position with that company, and worked himself up. Buffalo had heard nothing whatever about Mr. Smith's career. One day he was walking down Broadway when he was halted by the man who had once taken meal tickets for him.

"'Hello, Joe!' said Mr. Smith, as he extended his hand.

"Buffalo shook hands, but when he had gotten away he snorted out his indignation to a friend.

"'What do you think of that fellow Smith's nerve?' he said. 'He used to mind the door for me when I ran a railroad restaurant in Holly Springs, and now he stops me on the street and calls me "Joe," just as if we had grown up together.'

"The friend who had been confided in, laughed. 'Don't mind Mr. Smith's familiarity,' he advised. 'He's president of the Louisville and Nashville now.'

"'Well, I'll be d——d,' said Joe. Ever after that it was as much as a man's life was worth to talk to Buffalo about that 'fellow Smith's nerve.'"

Mr. Dugan also told an incident in the lives of two railroaders whose names were household words not long ago in the south. Both of them are now dead, so no confidences are being violated in repeating the story.

"They were great spenders," he said, "and great rounders, whenever they wound up their day's work, and one night they started out to paint things red in one of the big cities of the middle west. I don't want to give their real names away, even though they are both across the 'great divide,' so I will give them the fictitious names of John and Henry. John went by the boards first, shortly after midnight, and was carried off to the lockup, where he was assigned to a cell. He was awakened an hour or so later by a noise in the corridor, and looked out to see his friend, Henry, with a couple of policemen. Immediately John got on his dignity.

"'This is a nice way to treat a friend,' he said. 'Here I've been in jail three hours and you're just coming to get me out.'

"'H—l,' said Henry, 'I'm just getting in myself.'"

T. M. B. A.—Assessment No. 386 has been levied to meet the claims arising from the deaths of A. Stanley Cross, at Huntsville, Ala.; John M. Moffat, at Dunmore, Pa.; Wm. J. Bodell, at Fortress Monroe, Va.; Warren Dow, at Plattsburg, N. Y., and John J. Tierney, at Brooklyn, N. Y.

He came luffing down on the starboard tack of the operating room, hitching his trousers, and his eyes well to port, in regular "Jack Tar" fashion. To his astonished witnesses he said, "Oh, that's all right; I am just practicing my sea-legs to get a job aboard an ocean liner, when the Marconi system gets installed on steamships."

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On the Watch for Wire Thieves.

Possibly there are no suburban communities better protected from the depredations of midnight prowlers than the rural portions of Montgomery county, Pa. This practical immunity from thieving is the outgrowth of the presence of watchmen who nightly patrol the various telegraph, telephone and electric railway lines to guard the copper wires which is always profitable plunder for thieves.

Silent sentinels are on duty in frequented as well as lonesome localities to apprehend those yielding to the temptation to steal the wire. So keenly alive are the protectors of this important adjunct to travel that at times their over-zealousness causes some embarrassing and amusing annoyances.

A physician recently traveling along a country road at 1 A. M. was stopped thrice in three miles, lest perhaps his carriage might have contained a pair of malefactors with pliers and climbers for wire depredations.

An old farmer who journeys to market weekly, in order to facilitate travel, carried a lantern for several months. Whenever he saw a figure of a watchman emerge from ambush along the roadside he would slow up his team, hold the light up to his face and shout: "I am all right; come, get up there." He never realized the danger that he was making a mark of himself should a chance highwayman turn up until told so one day by a fellow marketer. The latter had a better plan on his route. He adopted a system of pass words to save loss of time by the interruptions of wire guardians. Whenever accosted he shouted out: "Corned beef and cabbage." The reply invariably came back: "All right, go ahead." This watchword became so prevalent in a certain region that for safety it was changed.

Loan Association Meeting.

The regular meeting of the shareholders of the Serial Building Loan and Savings Institution of New York, for the purpose of electing auditors and nominating officers to be elected at the annual meeting of the institution, will be held in the office of the corporation, 195 Broadway, on Tuesday, December 17, at 5 P. M.

The annual meeting of the shareholders will be held at the same place, on Tuesday, January 21, 1902, at 5 P. M. Polls for the election of officers will be open from 2 P. M. until 5 P. M. upon the day of the annual meeting.

THEN AND NOW.—The New York Times Jubilee number, issued on the fiftieth anniversary of its establishment, printed the following:

Western Union Telegraph Company, organized April 8th, 1851.

1851, 550 miles of wire; 1901, 1,000,000 miles of wire.

1851, number of offices, 12; 1901, number of offices, 23,000.

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Telegraphic Signals and Code Vocabularies.

During several years Mr. J. Nicolson, the superintendent of the River Plate Telegraph Company, at Buenos Aires, Argentine, has devoted much time to the preparation of an improved system of telegraph signals and international code vocabularies and the reclassification of conventional telegraph signals, and a work written by him on the subject was submitted to the Congress of Telegraphists held at Como, Italy, in 1899, on the occasion of the Volta Centenary. It was carefully reviewed at the first sitting of the Congress, June 1, 1899, by Mr. Brambilla, a member of the committee of organization, and, at his suggestion, it was unanimously resolved to send a telegram of congratulation and thanks to the author and that his work should be passed to the committee which was engaged in compiling the vocabulary. Mr. Nicolson's suggestions were also most favorably received by numerous technical and commercial journals and reviews of various countries. Arrangements have recently been made with Messrs. Whitaker & Co., London, to act as publishers for Mr. Nicolson's booklet. Although the system has since been developed, as shown by other papers from the author's pen, the principle remains the same; viz., a preconcerted arrangement of phonetically composed words adapted to telegraph signals, which would be productive of very important advantages to telegraphy and commerce in precision and economy.

We understand that the Argentine Government has resolved to propose to the Telegraphic Congress which will be held in London in February next the adoption of Mr. Nicolson's vocabulary.

Damages for Cutting a Cable.

The United States Circuit Court of Appeals has upheld Judge Townsend of the District Court in the case of the Commercial Cable Company against the schooner William H. Bailey, a libel case. In the lower court the damages for the cable company were fixed at $1,546.47.

It was alleged that on December 28, 1898, the crew on the schooner Bailey, in New York harbor, cut with a meat saw the European cable of the Commercial Cable Company. The damages first claimed were $5,000.

This case was prosecuted by the Commercial Cable Company more as a warning to the crews of other vessels which frequently and with malicious intent cut Atlantic cables, when it is much easier to slip the cable from a foul of the anchor by simply holding on to the cable with a rope slip-knot and then lowering the anchor a few inches until it is freed from the cable. Where this is done it is only necessary to let go one end of the rope which releases the cable. In the case against the schooner Bailey it transpired that instead of freeing the cable from the anchor in the usual way which would consume less than five minutes' time, over one hour was employed in sawing apart the three-inch cable with a meat saw.

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He Saved the Game.

H. A. Tuttle, general manager of the North American Telegraph Company, Minneapolis, Minn., had a narrow escape on November 16. With a party of friends Mr. Tuttle had been out on a hunting trip in the vicinity of Clearwater, a little town near South Haven on the Soo road.

At that point the Soo has a trestle, 500 feet in length and 75 feet high. Across this trestle Mr. Tuttle started to walk, leading his dog with him, as the animal was scarcely more than a puppy and could not be induced to cross on the ice below.

When part way over he heard a freight train approaching behind him. He turned, but thought he saw the brakeman signal to slow down and so continued on his way. A moment later, however, he heard the freight strike the trestle.

Some distance ahead there was a projection built out from the trestle to afford place for a water barrel. This, however, Mr. Tuttle could not reach in time, and he was compelled to throw himself upon the ties, just without the rails, and take his chances of being injured.

He feared that the cylinder would catch in his clothing and he knew if it did, nothing could save him. However, nothing more could be done, and he only had time to throw the dog to one side and hold him there before the train thundered over him.

Fastened to his back Mr. Tuttle had a number of partridges which he had shot. These were an additional source of danger, protruding as they did; and that he escaped unhurt is truly remarkable. The dog, however, was not so fortunate. The forward wheel of the engine ran over the tip of the animal's ear, splitting it badly.

Self-Control.

Self-control is the greatest of all qualities, the one most eminently fitted to make a man successful; it is a divine saving grace. It is, thanks to that great virtue, that a man does not listen to a first impulse; that before embarking in any enterprise he carefully weighs all the consequences; that before uttering an important sentence he follows the old time advice to let his tongue first go seven times around his mouth; that before taking any important decision he holds a committee meeting with himself and hears all the pros and cons of the question before putting it to the vote.

It is thanks to self-control that a man never loses his temper, but lets others do it to his own advantage; that he uses gallons of oil and only a few teaspoonfuls of vinegar in his relations with his fellow creatures; that he faces all the perilous situations of life with a chance of success; that he does not believe he knows everything and is beyond taking advice, but constantly lives and learns; that he keeps the friends that are worth keeping; that his reliability inspires others with confidence in him and makes him hosts of useful friends.—Col. A. B. de Frece.

A word fitly spoken is like apples of gold in pictures of silver.—Proverbs.

Some Excellent Books as Holiday Gifts.

Among the best books suitable for holiday gifts and which are at all times useful to members of the profession, never losing their interest and value, are the following:

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"LIGHTNING FLASHES AND ELECTRIC DASHES," 160 pages, illustrated. An original and sparkling collection of telegraph stories, quaintly descriptive of scenes and incidents that a telegrapher will appreciate and heartily enjoy; bound in cloth; a most acceptable holiday present. Price, $1, reduced from $1.50.

"TELEGRAPHERS OF TO-DAY," by John B. Taltavall, 354 pages. This volume presents a compendium of illustrated life sketches of over 800 well-known telegraphers who have been prominently identified with the telegraph during the past fifty years; bound in cloth; an eminently fit Christmas gift to any telegrapher. Price, $5.

"THE TELEGRAPH IN AMERICA," by James D. Reid, 894 pages, illustrated. This book is of marked interest and worth, inasmuch as it contains telegraphic records of great historical value, not to be found elsewhere. There are only a limited number of volumes of this great work now available; bound in full morocco. This splendid legacy left by the late well-beloved "Father of the Telegraph," should find its way to many homes this holiday season. Price, $7.

"TALES OF THE SIERRAS," by J. W. Hayes, 136 pages, illustrated. This volume, full of laughable incident, presents a collection of original and well told telegraph sketches, partaking in character largely of the former wild life of the frontier. The fun in the book, which never descends to vulgarity, is accentuated by droll illustrations by John L. Cassidy; bound in cloth; will be a welcome holiday addition to any library. Price, $1.

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"THE QUADRUPLEX," by Wm. Maver, Jr., and Minor M. Davis, 128 pages, 63 diagrams and other illustrations; treats of the technical side of telegraphy in a manner at once simple, comprehensive and easily understood; bound in cloth; price, $1.50.

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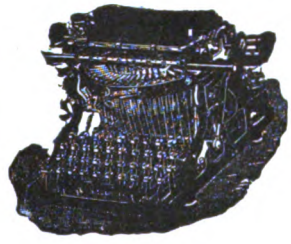
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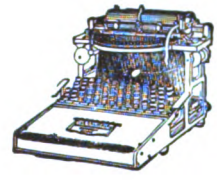


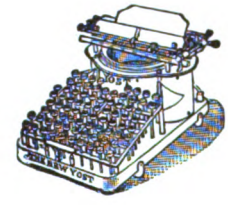
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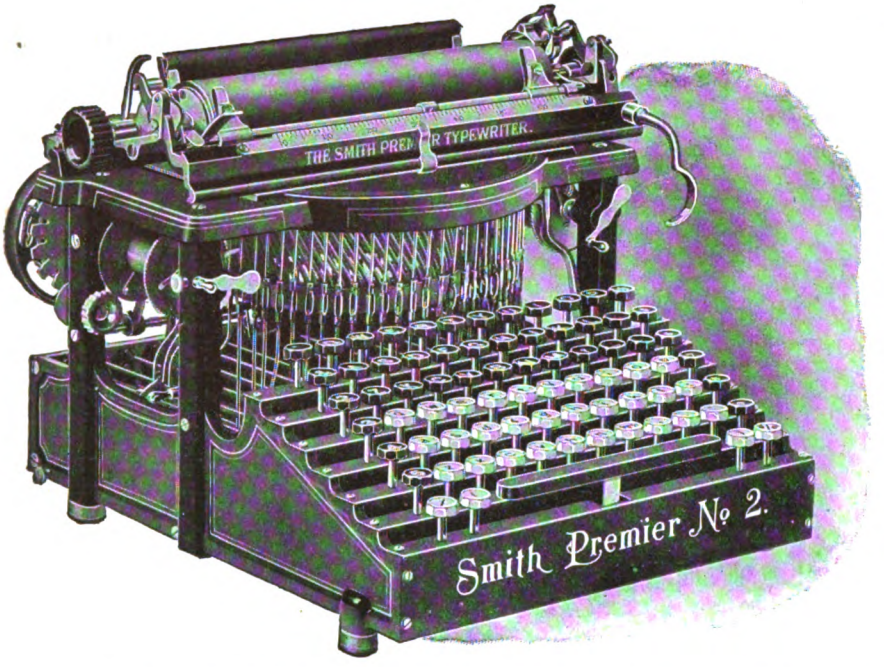
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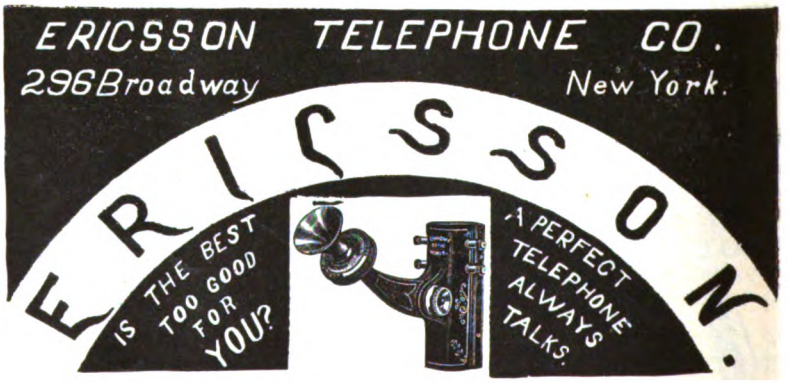
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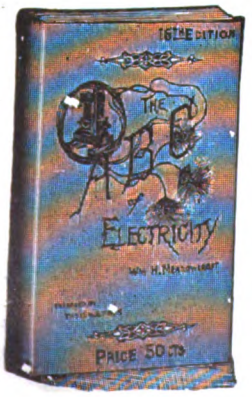
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NEW YORK, December 16, 1901.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLEX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

The Closing of the Year.

With this issue of TELEGRAPH AGE, its publication year closes. It has been a year of magnificent prosperity to the country, few individuals have suffered, and although the shadow of a national bereavement still lingers, the Government is in strong and wise hands, and all indications point to a continuance of a satisfactory condition of affairs both at home and in our foreign relations.

As we stand on the threshold of the holiday period, of which Christmas is the opening door, viewing the future, and recalling in retrospect the bounty of the year, now almost gone, it is well to let the season with its beneficent influences of good cheer, kindly feeling and nobler impulses, take possession of our hearts and to extend the hand of cordial greeting and good fellowship to those all about us. On such an auspicious occasion TELEGRAPH AGE wishes its friends of the key everywhere, here at home and in foreign lands, the boundaries of which offer no barrier to the desires of the heart, the compliments of the season. What can better attest the sincerity of expression than to say: "A Merry Christmas!" Let this message, then, go over the wire, through the country, flashing around the world, reaching every telegraph office and every reader of this paper.

Space Telegraphy for the Weather Bureau.

The fifth annual report of Secretary of Agriculture Wilson contains some reference to wireless telegraphy in connection with the work of the Weather Bureau during the last year. The secretary says the vast extent of our sea and lake coasts and the intimate communication between the Weather Bureau Stations, which are distributed along these coast lines, and the vessels of commerce have induced him to authorize persistent and systematic experimentation in space telegraphy. Substantial improvements have been made during the last year in the department's system. The line of research has been divided into three classes: First, the perfection of a more powerful transmitter, in which the energy of radiation shall be greatly increased; second, the devising of a more delicate receiver—one that would be positive instead of depending upon an imperfect and variable contact, as do all systems now in use, and, third, the perfection of a system of selective telegraphy, whereby messages may be differentiated, and only the receiver that it is desired shall receive the message may become responsive to the waves of ether.

The first of these problems may be said to have been successfully solved, with a transmitter capable of radiating all the energy generated. The second is believed to be nearing a successful solution. The third is thought to be well demonstrated theoretically, but has not been fully tested in practice.

In conclusion, the secretary says that while there is much experimental work yet to be done before the present system is reliable for inter-ship communication, or before any two systems can work within the same field without each rendering the other useless, such progress has been made by the Government experimenters that, with no interference by private systems, stations can be successfully operated over at least 150 miles of coast line, and they are now in operation on the North Carolina and Virginia coasts, and soon will be instituted between the Farallone Islands and the mainland and Tatoosh Island and the mainland, on the Pacific coast.

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The Pacific Cable.

The President in his annual message makes the following reference to the need of a Pacific cable: "I call your attention most earnestly to the crying need of a cable to Hawaii and the Philippines, to be continued from the Philippines to points in Asia. We should not defer a day longer than necessary the construction of such a cable. It is demanded not merely for commercial but for political and military considerations.

"Either the Congress should immediately provide for the construction of a government cable, or else an arrangement should be made by which like advantages to those accruing from a government cable may be secured to the Government by contract with a private cable company."

The Board of Trade Quotation Case.

On the ground that the Central Stock and Grain Exchange, of Chicago, is a bucket shop and that as such it is conducting a business contrary to law, and, therefore, is not entitled to receive the market quotations of the Chicago Board of Trade, an opinion was handed down in the Appellate Court, November 21, reversing the decree entered a year ago by which the Board of Trade and the Western Union Telegraph Company were enjoined from interfering with the service of the concern by withholding from it the daily market quotations. The decision is a sweeping one and is a signal victory for the Board of Trade, for it means that the last and strongest of the reputed bucket-shops in that city has finally been forced to surrender to the crusade which was started some time ago and which has been carried on by the board.

Christmas-tide.

If we would have a truly happy Christmas we must do something to make others happy. On every side, around and about us, there are those to whom a simple little act of kindness means a great deal, and no season of the year could be more appropriate for kindly acts than the coming Christmas time. There are many ways of helping people; often a little thought or a kind word does more real good than indiscriminate giving. No matter what our own condition or position in life, there are always, in every community, some people less fortunate than ourselves, who struggling on from day today and into whose life little sunshine enters. It is possible to make their Christmas happier, we brighten our own lives, for every kind thought, every kind action is bound to reflect upon ourselves. You may not be able to do much by yourself, but persuade others, your neighbors and your friends, to help you. Seek out those in most need of help and help them in the most practical way possible.

Of all seasons of the year Christmas should be the happiest and merriest, especially for the little folks, and it takes very little to make them so. For weeks before the wonderful day arrives joy and expectation run riot in their little hearts, while they plan delightful surprises for father and mother. Christmas is essentially the children's time, for then they are allowed to play to their heart's content, lessons are entirely forgotten, and both father and mother vie with each other in making this season as happy as possible.—Col. A. B. de Frece.

Cable Interruptions.

Faults, apparently due to fish bites, have been removed from time to time from submarine cables, which have either totally interrupted telegraphic communication or have seriously affected the working of the lines. Cables established in deeper waters have not hitherto, however, been often similarly attacked. But a fault removed a few months ago from the Sydney-Nelson section of the Eastern Extension Cable Company at as great a depth as 320 fathoms was found to contain a tooth firmly fixed in the core of the cable, although the core—or interior portion of the cable containing the conductor—was protected by the usual sheathing of thick iron wires and outer coverings. An expert examination of the tooth proved it to belong undoubtedly, to a species of shark, the exact variety of which could not be identified; but it appears that five known varieties of sharks are found to exist at a depth of 300 fathoms, and one at a depth of even 500 fathoms.

Apropos of the above, Andrew Jamieson, of Glasgow, Scotland, who was engaged in cable repairing in South America for many years, states in a letter to the Electrician, of London, that he believes the tooth mentioned above is that of a sword fish and not of a shark. In his cable experience he had many interruptions of this kind mentioned, all of which were caused by the sword fish. They are, it appears, in the habit of slashing right and left with great rapidity, force and fierceness at an enemy; and, evidently they regard the submarine cables as such, for they so bury the teeth of their swords between the iron sheathing that they penetrate the dialectric of the core, and leave their teeth embedded therein! Such faults, he thinks, were therefore caused by a stabbing action. Some persons class these "sawfishes" as "sharks," but most assuredly they do not bite the submarine cable.

An important link in one of the Postal Telegraph-Cable Company's trunk lines was finished by the laying of a cable across the Detroit river, between Detroit, Mich., and Windsor, Ont., a few days since.

"How are things done in this office?" inquired a newcomer; "do you steal, beg or borrow pens, pencils, pocket-knives and rubber erasers?"

"Well," replied the long-timer, "it is better to steal, I guess, as its humiliating to beg, and you sometimes get found out if you borrow them."

Men of the noblest dispositions think themselves happiest when others share their happiness with them.—Duncan.

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THE CARNEGIE PROPOSITION.

[Some of our readers who warmly indorse the pension scheme for telegraphers suggested by Mr. Carnegie, advocate a plan of collecting small sums from individual operators who wish to participate in the pension fund. Most every one who discusses the subject advances the opinion that in case any one who has contributed to the pension, even for a number of years, and who leaves the telegraph service or becomes too poor to keep up his payment, shall forfeit all the money paid in by him. We beg to inform those who entertain such ideas that a plan of this character is contrary to law, and therefore illegal. Not one dollar can be accepted from any one without an equivalent return. This fact should be borne in mind by those who wish to discuss the pension proposition in these columns.—Editor.]

The Best Philanthropy.

Editor TELEGRAPH AGE:

As you invite a symposium on a philanthropic subject, and as Mr. Carnegie has kindly considered it, I offer the following thoughts: The greatest enemy of the telegrapher is tuberculosis. The greatest beneficence that could be accorded him would be aid against this assassin. The best aid and comfort to this end that could be given by a great philanthropist would, in my opinion, be facilities for sojourning out of doors in a good climate, with suitable occupation, good food and medical supervision. This means a ranch in New Mexico, Colorado, or Southern California, or even in the Appalachian range, after the plan of the New York state sanitarium for consumptives in the Adirondacks, the proposed Pennsylvania sanitaria in the Alleghenies and the Massachusetts sanitarium, which was the first of the kind in this country. The ideal institution would add industrial occupation for the young consumptive, as is done for the epileptic in the Craig colony in New York. Tuberculosis is far more common than is generally supposed. In thousands of autopsies of adults after death from other diseases evidences of tuberculosis is found in about half. This, together with clinical experience, shows that consumption is curable in very many cases. In fact, the same disease, tuberculosis, is quite curable in other parts than the lungs, as bones and joints, which can be placed at rest; and it has been demonstrated that it is only the necessary motion of the lungs in breathing that makes it difficult for nature to cure tuberculosis in the lungs.

The pension scheme is good, libraries are superb, but as for me, were I a philanthropist, I would rather aid in restoring one such boy as our old comrade, Davie Strouse, to health and happiness than to circulate a great many books. It might not be thought desirable to admit incurables to such an institution. Indeed, I think it a great mistake to send hopeless cases of consumption away from home, at least under present conditions. If philanthropy should extend so far as to include them, they should be provided for separately. My idea would be to limit the scope of the suggested scheme to cases susceptible of amelioration or cure, at least until science makes a further advance in this field. The details would be practicable. This is the philanthropic idea from the medical standpoint of an old telegrapher.

J. EMMET O'BRIEN, M.D.

Scranton, Pa., Nov. 28th.

Give Us a Telegraphers' "Trust."

Editor TELEGRAPH AGE:

Respectfully, for the attention of Mr. Andrew Carnegie, and whoever thinks of his money for telegraphers, it is submitted that what we want is neither homes nor pensions. First, what the telegrapher most needs is a thorough schooling in the brainy, sturdy character class that the old Scotch blood has developed in Mr. Carnegie. He cannot impart that to us, but it could help some of our number if he would write a book on the vicissitudes of his own career and how he overcame difficulties to success.

We of this calling die young or go out of the business generally before we could qualify for a home for the aged or disabled. Not differently a pension is impracticable and almost too droll a thought for more consideration than respectfulness demands for the mover of the proposition.

In fact, Mr. Carnegie's suggestions ought to shame us rather than delight anyone, coming as it does from a man who began life more lowly perhaps than many of us, and who has singly done such tremendous things to help himself and thousands more, while we, who are many, have succeed in comparatively nothing for ousreslves and not more than a mere trifle now and then for anybody else.

It is a pitiful plight that, after nearly half a century's existence as a body of expert wage earners, now in the presence of millionaire philanthropists, we are found, hat in hand, the latest comers at the "easy" door of one man's colossal fortunes, and with no other plea than that we have done little for ourselves or for anybody else.

Mr. Carnegie's gentle reference to what certain railroad companies and employees are doing is, after all, a cut, however kindly given, that deserves to prod us and the people we work for with something like a pang of conscience! It is a rebuke that every person in the telegraph business can take to heart as meant for him! Telegraph companies are, in fact, about the only concerns of any consequence that never did anything in general for their employees and never permitted them to do anything for themselves without the employers' dictation, although there has never been an organization at our hands which did not aim at some of the objects of these arguments.

In times when we have dearly needed the sympathy and counsel of men of brains and hearts the iron hand has been manifest instead, when some puny figure in authority would deal a blow from which there could be no rising and no appeal. But, from these experiences, it is not conclusive that telegraph companies would not, under certain cir-

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cumstances and conditions, attempt something commendable for employees. Nowadays are not other days in fact, and a newer great system has fixed itself in the telegraph field, without the proverbial sign, "For Sale," hung out. It means more modern things for us, and gives ground for hope that the example of railroads, of Mr. Carnegie and others toward employees may have wholesome effect somewhere in our midst when the proper time comes to pass.

No people can better afford to do for one another among themselves than can those of the telegraph. Few are more generous than they in such matters when once the object is defined as worthy, and an honest administration of their commissions is assured. Then why cast about for a "nucleus" around which to gather a fund or something of lasting benefits to telegraphers of this continent? To this end we have two of the best life insurance associations of their kind in existence, and also "aid" societies in several large cities.

Let all these be merged into one great organization for North America—a "trust" practically, with all the benefits needed in life and something left over after we are dead. Mr. Carnegie can tell us how to organize a "trust," so that none of these associations and societies will lose its identity, and still all work clock-like together. Then the solitary man at some far off railroad point could be as well provided for in these essentials as the man living close at the fountain head where these several advantages flourish.

A free discussion of this matter is an excellent opportunity for every man to decide the line of his choice and determine his action for a continental movement sometime that will crystalize to the permanent benefit of the telegraphers of North America. M. W. R.

New York, December 6.

Pensions for Telegraphers.

Editor TELEGRAPH AGE:

Referring to the pension plan spoken of by correspondents in Telegraph Age and discussed at the meetings of the Old Time Telegraphers' Association, it seems to me that it could be very easily arranged. The migratory habit of telegraphers need be no bar to their participation in the pensions, provided they keep up their dues to an association to be formed upon the establishment of such a fund. My suggestion for a starter would be that each man who expects to reap the benefits of such an association shall subscribe one day's pay, this to be collected at a stated time by the manager of the Postal and the Western Union in each city of the United States, thus forming the nucleus of a fund, and the more substantial the operators make this nucleus the more substantial will be the amount that Mr. Carnegie will give. Here in Pittsburg it is a pretty well-known fact that Mr. Carnegie always helps most those that helps themselves. Let the operators of the country show Mr. Carnegie that they appreciate his offer and show him, too, by liberally meeting him with a fund of their own, and I venture the amounts given by Mr. Carnegie and the two leading telegraph companies will be liberal. No doubt there are many telegraphers who will prefer to remain outside of such an association, claiming that they do not expect to remain in the business. Their remaining in the business should not be compulsory; if they go into other businesses and succeed so much the better. If they fail and have kept their dues paid up they should be entitled to the benefits. Now, Mr. Editor, I have complied with your suggestion that we all be heard from. I would like to hear from some one who can put these crude ideas in better shape. As for a colonizing scheme or a home for superannuated men I fear such schemes would not work. I for one would hesitate a long time before I forsook the scenes of my life's labors to go into a home in some distant State. Let the plan be a pension one.

P. J. MCKEEVER.

Pittsburg, Pa., Dec. 6.

Amusing Telegraphic Errors.

The telegraph operators wields an important stroke in the sports of the day, although his personality is frequently hidden behind his instrument. It crops out, however, on occasions with direful results. The other day, in transmitting the report of an important football game, the careful operator sent the awful information that "the quarter back kicked a goat from the field." It was a goal that was kicked from the field. Here's another: In the report of a Brooklyn-New York baseball game last summer the receiver at the other end of the wire got the startling announcement that "Willie Keeler sent a hot liver to short." Of course, the receiver, who knew the game, tumbled to the fact that Willie had walloped out a hot liner. The sender was a woman and wasn't supposed to know. Perhaps she thought the shortstop was hungry—Brooklyn Eagle.

Cats Cause Trouble.

A cat climbed a pole of the Buffalo & Lockport Electric Railway on November 13, at Hoffman, N. Y., and while attempting to walk along one of the feed wires her tail touched one of the 22,000-volt Niagara transmission lines. Instantly there was a flash and kitty was killed. The dead body fell across the wires, causing a short circuit, which resulted in the shutting off of the power at Niagara for two hours. In the meantime, several of the electric railways and lighting systems in western New York were without power. The next day a cat in Utica, N. Y., prowled around the power house of the Utica Belt Line and came in contact with some live parts. A short circuit was caused, several fuses were blown, and the cars were stalled for some time, but puss still lives.

In a recently issued circular, the Commercial Cable Company states that it has completed its fourth route to Europe, and adds that it is now the leading Atlantic telegraph system, having over 13,000 miles of Atlantic cable. The fourth route to Europe runs via the Azores to its cable station at Waterville, Ireland.

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The Wreck at Sugar Creek.

BY W. W. WILSON.

The train dispatchers at Flemington on the M—— route had taught me to telegraph, and when I had reached the age of seventeen, the superintendent deemed me a capable enough master of that profession to take charge of the night office at Lindley.

The business had great fascination for me, and the tick-ticking of the sounder was mysterious music to my ears as the dots and dashes resolved themselves into words. I had applied myself to its thorough study with great earnestness.

So it was indeed a proud and happy launching into my chosen career when I stepped from a north bound accommodation at Lindley and watched the baggageman unload my trunk, which was the only one checked for that station by that train.

Lindley was then a small town of one thousand inhabitants situated about half way between Ford City and Fayette, Ind., twelve miles north and south respectively. The depot where I was to work was nearly a mile from the town, and at a point where the K. C. and M—— roads crossed each other. It was the only night telegraph station between the two cities, and important as an order point when trains were behind time, as there were no double tracks in those days.

My duties, when trains ran on regular schedule time, consisted in reporting their passing to the dispatcher at "D. S." office, Flemington; checking an occasional trunk, and keeping awake—the latter being the most arduous work attached to the position.

I was much delighted with my new place, and sent the train reports with enthusiastic promptness. Most of my idle time while on duty was spent talking on the wire to Jim Ellsworth, the late trick dispatcher at "D. S.," when the circuit was not busy, and copying messages for practice when things were lively. When a train would pass a station, the operator there would signal the dispatcher by repeating the letters "O. S." several times, sign his office call, and then give the time of arrival and departure of the train. The dispatcher usually acknowledged these reports by "O. K." or making a couple of dots on the wire. I soon became so familiar with the time of trains at the different telegraph stations that, on hearing an "O. S." report, I could determine exactly how much time should elapse before they reached me, and thus each night I would fix in my mind the position of all the traffic on our division. Eventually, however, the sameness of these duties grew monotonous, and I found myself napping during the easy hours of the morning. A little over half way between Lindley and Fayette ran a turbulent stream called Sugar Creek, which the railroad crossed by means of a long trestle suspended from high abutments on either side of the creek. This trestle was considered a masterpiece of engineering skill as it had been placed from one perpendicular wall to another with much difficulty, and at the only point where such a structure was possible. Bulletins were posted along the line warning trains to approach and run slowly over it, as high speed might cause a swaying motion with possible danger of derailment.

On the night of April 10, 18—, I had been in charge of the office at Lindley four months. The day had been threatening as to weather, and old Jupiter Pluvius had just begun to get settled to steady work when I reported for duty at 7 P. M.

I put the signal lights in place on the semaphore arms, and prepared, as usual, red and white hand lanterns to be used in event of emergency. As the night wore on, the rain increased in force, until the water came down in fierce torrents, and beat upon the little box-like depot as though its fury were centered upon the destruction of that small structure. The night was stygian dark, and the red gleam of the signal lights on the semaphore looked out into the blackness like a pair of demon eyes eager for some nocturnal mischief. The dismal droning of the wires, as the wind tore through them, and the continuous rattle of the instruments, combined with the warring elements to create a feeling of awe and dread, as though something horrible must result as a consequence of their conflict.

As I looked out of the little bay window, the surrounding earth seemed to have been washed away, leaving the little depot standing alone on the pinnacle that remained, and wavering as in preparation of a last leap into unutterable space.

I was brought to a realization that my imagination was at work, by the distant long toot of a whistle. It was No. 42, a fast freight, south bound, which soon came thundering down the grade. I pulled the signal and gave her clearance, and stood watching the long line of cars as they wound around the curve into the darkness—and they seemed to my young fancy like a monstrous serpent, created especially to bear away the sins of mankind, and that it went out of sight with a hiss and a snort, as though weary of its burden.

After I had reported its passing, I sat down in my chair, put my feet on the telegraph table and lit a pipe, thus composing myself, as it was nearly an hour before No. 4, the limited night passenger was due.

I dropped into a doze, but was awakened by the operator at Ford City, twelve miles north, rattling the wire, and reporting "O. S., O. S., F. C., No. 4 on time." Dispatcher Ellsworth acknowledged "O. K.," and the wire was still again.

For some time I sat listening to the rain, half asleep, half awake. Suddenly the operator at Fayette, twelve miles south, began in a most frantic manner to call the dispatcher. Ellsworth answered promptly, and I heard the following message:

"No. 42 has gone through Sugar Creek bridge; entire train precipitated into water. Hold No. 4 at Lindley." No sooner had he closed the wire on this startling information than No. 4 whistled for the crossing half a mile up the track in front of me.

I saw her electric headlight darting a bright

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streak through the intervening darkness, and heard the crash of the rails as she came booming along at full speed.

Not an instant was to be lost. There was no chance of signaling her if she got beyond me. I realized that I must stop her lest she plunge head-on into the bridgeless chasm ahead. It was almost an unprecedented thing to stop No. 4 at Lindley, and I shuddered at the thought that the engineer might not see my red block. I reached for the semaphore rope, as I had negligently left the signal white after the freight, which was subsequently wrecked, had passed.

Ellsworth was calling me on the wire—each second in a more rapid manner as he became uneasy—knowing as he did that No. 4 was then due at Lindley.

There was no time to answer him. I knew what he wanted!

I unwound the signal rope from its hook, and let the arm of the outside semaphore down so quickly that I could feel the thud as it settled into its socket.

I looked out of the window to see if the light showed red.

The light was out!

The jar of the descending arm of the semaphore had extinguished it. For one instant—it seemed an hour—I stood paralyzed. Jim was still calling me.

I seized the red emergency lantern, rushed out of the door, across the platform and up the side of the track. The engine was fairly upon me; the brilliant headlight sent its blinding rays directly in my face.

I raised the lantern to give the danger signal. At the first swing it went out.

Hardly knowing what I did, I sheltered a match under my hat. Fortunately it burned, and I lost no time in relighting the lantern. I swung the signal as the last coach passed me, and continued to do so until her tail lights faded from sight around the curve.

I stood, lantern in hand, by the side of the track in abject despair, utterly heedless of the driving storm. Then I walked to the office. Ellsworth was still calling me. I placed my hand on the key, but did not open it. What could I tell him. How could I explain? I had not answered my call. I could not prove I had not been asleep on duty. True, the engineer had passed the station without a signal, which was strictly against orders, but he was not accustomed to look for a stop at Lindley; and, then, he would be dead.

I alone was responsible for that train load of human freight plunged to eternity down that awful abyss. I knew it would be impossible to stop the fast flying train on the steep descent before it reached the place of its destruction.

I heard the crash of the wreck, the groans of the dying; the awful scene was before me, as plainly as though it had already taken place, and I was an eyewitness. I saw myself tried, convicted, and in prison for my crime of carelessness. As this terrifying picture so vividly presented itself to my mind, and I was trembling with a sense of fearful responsibility, I heard a bumping of wheels over the crossing. I pressed my face against the window and peered out, expecting to see a train going east or west on the other road.

As I looked a thrill of inexpressible thankfulness came over me. It was No. 4 backing up. The engineer had seen my signal!

Jim was still calling me, but it was soothingly sweet music.

A B C of the Telephone, a practical treatise, by J. E. Homans, A.M., containing 352 pages and embellished with 269 illustrations, is without doubt the lowest priced work of high character on the subject that has yet appeared. The book is arranged in twenty-eight chapters, dividing the subject into definite departments for reference.

Owing to the great growth of the telephone industry during the past few years, and in response to the demand for a comprehensive book giving a clear, terse idea of the different principles governing the construction, installation, care and management of the various telephones and their appliances, the A B C of the Telephone has been compiled. It is written in a most clear and careful style, and aims to give a complete review of the subject of telephony from the first invention to the most recent improvements.

No expense has been spared in gathering valuable information, and it has been the aim of the author to make this treatise the most complete elementary book ever written on this subject for the practical electrician, wireman, lineman, engineer and all persons interested in this great achievement of modern science.

This book will be sent to any address, express charges prepaid, upon receipt of one dollar. Send orders to J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

"Wireless Telegraphy" is the title of a new and popular exposition on this interesting subject, by G. W. Tunzelmann, B. Sc., the author of "Electricity in Modern Life." The volume is fully illustrated, and includes chapters on ether and ether waves, the discovery and development of the coherer, the systems of Marconi, Popoff and others. It is a capital book, and affords just the line of information now in such demand regarding the topic treated. It will be sent on receipt of price, 75 cents, to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

The following colloquy has not quite occurred as yet:

Applicant.—"Yes, sir; I am strictly first class."

Chief Operator.—"Can you take business with a pen?"

Applicant.—"With a pen? Well, er—, I prefer to borrow a typewriter—you don't have to ask for that, you know."

Beware of little expenses; a small leak will sink a great ship.—Franklin.

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White House Wires.

Many interesting things are told about the work of the telegraph and cipher bureau at the White House by Capt. Benjamin F. Montgomery, Signal Corps, the officer in charge, in a report to the chief signal officer of the army recently made public.

"During the past year," says Captain Montgomery, who is an old-time telegrapher, "the telephone and telegraph systems have remained practically the same. To the twenty-five wires already in use have been added two telegraph wires with two sets of duplex instruments. This was found necessary in order to have an exclusive wire for the safe transmission of confidential cipher business between the executive office and the cable offices in New York. An extra wire was also needed for direct communication with the President, wherever he might be while absent from the capital.

"Arrangements are nearing completion for the installation of a telephone exchange in the White House, which will supplement the telephone service already in use. This will increase the working capacity of this branch of the office, and will undoubtedly prove useful and fully meet the rapidly growing demands of this particular department. It will consist of three separate trunk lines, with seventeen miles of exterior lines, giving direct wires to the eight executive departments, the government printing office and the Congressional Library, and also connect up the seven new stations in the different parts of the Executive Mansion, all of which will be controlled by the switchboard in the central exchange of the telegraph and cipher bureau.

"The total number of messages handled during the past year was 53,400, three-fourths of which were of a confidential nature and in the different departmental cipher codes.

"During the fiscal year just closed, the telegraph and cipher bureau of the executive office has fully measured up to the high standard attained in the past, and met every requirement necessary to the prompt and safe dispatch of the important and confidential business intrusted to its personnel. While the volume of business in some particulars has not been quite so large as in previous years, owing to the less active movements of the army and navy at home and abroad, it has been greatly augmented by reason of the increased work of every executive department, growing out of the new order of things, and the extended fields of commercial and government enterprise. The cause for this can be readily appreciated when it is remembered that the telegraph and cipher bureau is the medium through which the chief executive receives all important information touching the vast interests of the government and is the means and method by which he may the more quickly and rapidly communicate with his cabinet officers, the executive departments and the outside world.

"Many striking illustrations of the value and adaptability of this service to the needs of the hour in great emergencies were shown in the late war with Spain. Then the constitutional commander-in-chief of the army and navy became the actual commander-in-chief, and from his office in the Executive Mansion gave orders direct to his armies in the field and his commanders on the sea, and from them received hourly reports of their operations ashore and afloat.

"While the tragedy at Buffalo was enacted, subsequent to the close of the last fiscal year, the signal officer on duty with the late President hopes it will not be thought untimely or improper to refer in these supplementary paragraphs to the work during the sad hours of watching and waiting, from the afternoon of September 6, 1901, when the fatal shot was fired, till the closing scene on September 19, 1901, when the body of our beloved chief was consigned to the grave.

"Within fifteen minutes after the late President was struck down by the assassin's bullet the signal officer in charge at the Executive Mansion had secured two direct and exclusive wires to Buffalo —one a telegraph wire and the other a long-distance telephone circuit—and had put the office in direct communication with the secretary to the President and those nearest to the distinguished sufferer. The terminus of the telephone wire was close beside the hospital, and from this source was first obtained the official details of the horrible crime. All during the afternoon the long-distance telephone connection was kept clear, and over this wire the news, from moment to moment, was received and freely and promptly communicated to the officials of the government in Washington, the anxious relatives and friends of the late President and the public. Immediately upon the removal of the late President from the hospital grounds to the Milburn residence a telegraph wire was placed in the latter building and there maintained, in good working order, from that moment, both day and night, until the body was taken away to start on its journey to the capital.

"During this period there was sent and received 4,351 messages, including official dispatches, bulletins and tidings of alternating hope and sorrow to the anxious world. It will ever be a source of pride and gratification to the officer in charge and the faithful assistants, who, without heed of time or personal comfort, that they were given the high honor and the great privilege to stand and serve with those who faithfully watched by the bedside of the dying President.

"Perhaps it is well to state at this juncture that the telegraph and cipher bureau was the creation of the great mind of the late President William McKinley, and it is well known to his official advisers and intimate friends that he has often spoken with evident pride and satisfaction of this particular part of the executive office. On many occasions he has spoken to the signal officer in charge in complimentary terms of this bureau, and often gave willing and cheerful testimony to what he termed in his annual message of 1898 as a service which 'was invaluable to the executive in directing the operations of the army and navy.'

"The chief signal officer, I am sure, will not think it improper or in any manner a violation of

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the confidence reposed if I recite an incident to illustrate the late President's high regard for the work of the Signal Corps. The night before the late President left Canton, Ohio, for the trip to Buffalo, he made request of the signal officer in Washington, over long-distance telephone, for certain data concerning the telegraph work of the army during the late war. The result of that conversation is the following graceful tribute to the work of the Signal Corps of the army in his last public utterance, and which I take the liberty to quote herewith:

"'It took a special messenger of the government, with every facility known at the time for rapid travel, nineteen days to go from the city of Washington to New Orleans with a message to General Jackson that the war with England had ceased and that a treaty of peace had been signed. How different now!

"'We reached General Miles in Porto Rico by cable, and he was able, through the military telegraph, to stop his army on the firing line with the message that the United States and Spain had signed a protocol suspending hostilities. We knew almost instantly of the first shots fired at Santiago, and the subsequent surrender of the Spanish forces was known at Washington within less than an hour of its consummation. The first ship of Cervera's fleet had hardly emerged from that historic harbor when the fact was flashed to our capital, and the swift destruction that followed was announced immediately through the wonderful medium of telegraphy. So accustomed are we to safe and easy communication with distant lands that its temporary interruption, even in ordinary times, results in loss and inconvenience. We shall never forget the days of anxious waiting and awful suspense when no information was permitted to be sent from Pekin, and the diplomatic representatives of the nations in China, cut off from all communication inside and outside of the walled capital, were surrounded by an angry and misguided mob that threatened their destruction, nor the joy that thrilled the world when a single message from the government of the United States brought through our minister the first news of the safety of the besieged diplomats.'"

Dr. William Duane of the State University of Colorado has "re-invented" the Delany multiplex system of telegraphy. His system is based upon the synchronous principle, and he states that he is able to maintain as many as eighteen circuits over one wire. The trouble with systems of this kind is the inability to secure perfect synchronism, and eighteen circuits could not possibly be obtained under the most perfect conditions. The doctor claims too much.

The Electrograph Company of America has been incorporated at Dover, Del., with a capital stock of $1,000,000. The concern is to manufacture machines for the transmission of photographs and fac-simile writings by telegraph.

The machine is the invention of H. R. Palmer, of Cleveland, O.

The Telegraphers' Aid Society Entertainment.

The annual entertainment of the New York Telegraphers' Aid Society for the benefit of the relief fund took place on Friday evening, December 6, at the Lexington Opera House and Terrace Garden. It was equal to similar former occasions of the kind, all of which have been highly successful, both in the quality of entertainment and the financial results obtained. The entertainment consisted of high class vaudeville, which amused an audience of over fifteen hundred people until almost midnight, when dancing was indulged in, twenty-four selected numbers constituting the programme. The officers of the Society are:

H. W. Sauer, president; E. E. Brannin, vice-president; Thomas M. Brennan, treasurer; H. C. Fardon, recording secretary; Wm. J. Quinn, financial secretary.

Executive committee: Miss S. Dougherty, H. W. Sauer, E. E. Brannin, Andrew J. Gillman, M. F. Gaffney, J. McParlan, E. T. Dempsey, Miss M. E. Jermain, Thos. M. Brennan, R. C. McDonald, Geo. Leveene, W. W. Price, J. Gschwind, H. C. Fardon, Wm. J. Quinn.

Auditing committee: John H. Driscoll, Frank D. Murphy, John Brant. Trustees: Thos. M. Brennan, James C. Robinson, John K. Calvert. Relief committee: E. F. Howell, Miss A. McShea, Chas. Shirley.

Mr. T. A. Brooks, who arranged the programme of entertainment, is certainly deserving of great credit for his excellent judgment in the selections made. Mr. W. C. Burton was chairman of the reception committee, assisted by J. E. Walsh and Geo. E. Randolph; Edward T. Dempsey was the floor director, assisted by J. J. Fredericks and W. L. Shaw. These gentlemen were supported by some seventy-five assistants.

This yearly function of the New York Telegraphers' Aid Society has undoubtedly become a fixture in the telegraph life of the metropolis, having gradually won its way and demonstrated its right to the warm support of all telegraphers. The continued excellence of the vaudeville entertainment for several years past has finally convinced the friends of the aid society that they can see the best show in New York at a reasonable price, only the most desirable numbers from the leading vaudeville theaters of the city are secured for this entertainment. It is a matter of congratulation that the beneficent purposes of the relief fund are furthered, while at the same time every patron of the entertainment feels amply repaid for the outlay.

It is proposed by one of the numerous wireless telegraph companies to open offices at Washington, Baltimore, Wilmington, Philadelphia and New York, for the transaction of public business. Great advances in efficiency will first have to be made in the wireless system before it can be worked in the manner contemplated. Many persons believe that this move is only a guise to induce the public to invest in wireless telegraph stock, so much of which is now being offered to the public at bargain counter prices.

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LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.]

ST. LOUIS, MO., WESTERN UNION.

B. E. Black has returned from several weeks' leave of absence. He had been visiting his coal properties in the Indian Territory.

M. J. Goff resigned on November 15, and will spend the winter in Omaha, his home town.

C. W. Jost and his brother, Walter, lately returned from a three weeks' vacation at their old home. Both look fine and report an excellent time.

John R. Magill, chief operator at the Globe-Democrat, mourns the loss of his wife, who died November 19, after a very short illness.

Charles Palmer also mourns the loss of his wife, she having died November 3.

CINCINNATI, OHIO, NOTES.

The many friends of Mr. William Lukens will be pleased to learn that he is recovering from an operation recently performed for appendicitis.

A son arrived at the home of Mr. and Mrs. William McGarry.

The well-known and efficient operators, Mr. L. D. Johnson and Mr. Eugene Barnard of the Western Union, have returned to work, after the close of the fall race meeting, where they were employed in reporting and describing the racers.

A late arrival is Mr. Charles B. Luckey, of Chicago, who has accepted a position with the Scripps-McRae Press Association, operated in the office of the Cincinnati Evening Post.

DALLAS, TEX., POSTAL.

On October 1st the Postal Telegraph Company moved into a new up-to-date office at 243 Main street, the building having been constructed especially for the purpose. All of the equipment, which was installed under the supervision of S. M. English, assistant general manager, is of the latest pattern and the office has been conceded to be one of the best equipped in the South. The move was made with practically no interruption to business. All wires are now brought into the main office through an underground cable, consisting of fifty conductors.

The personnel of the new office is as follows:

W. I. Church, manager; I. D. Hough, chief operator; W. L. Jones, traffic chief; W. H. Ocker and E. E. Bruckner on the St. Louis bonus wire; V. C. Mayhew on the New Orleans Commercial News Department circuit; C. E. Spencer and R. H. York on Houston; J. H. Staples on Galveston; P. H. Byrd on Memphis; B. F. Shrimpton on Shreveport; E. E. Taylor on San Antonio; C. F. Avery on Austin and Waxahachie; G. S. Hereford on the Indian Territory wire; I. L. Adkins on the Waco phonoplex; H. N. Wiley on Fort Worth; J. A. Hudnall on Corsicana, and R. A. Ditch on Paris. The night force consists of W .W. Hoskins, chief, and operators, B. F. Lally, H. P. Wells, A. Lucas and E. J. Parsons. J. W. Gilliam has charge of the delivery department, assisted by Miss Delia Conboy, receiver; Harry H. Rinker, bookkeeper, and Craig Dunlap, night delivery clerk. Samuel Cabell is collector.

Recent visitors: Mr. M. M. Davis, traffic manager of the Postal Telegraph-Cable Co., New York, and the following Postal Telegraph Company managers: W. A. Porteous, New Orleans; W. H. Mann, San Antonio, Tex.; J. C. Witt, Houston, Tex.; C. J. Heath, Galveston, Tex.; W. Y. Nolley, Fort Worth, Tex.; W. A. Logan, Paris, Tex.

The Fairchild & Hobson private wire system is presided over by Mr. B. Wells, superintendent, assisted by J. B. Alexander, D. H. Hawley, L. Muller and E. R. Pickett.

THE ASSOCIATED PRESS NOTES.

Mr. A. M. Routt of the New York bureau has resigned to accept another position at Washington, D. C. C. M. Baldwin, of Albany, N. Y., has been transferred to the New York bureau. J. W. Wood has been transferred from Norwich, Conn., to Albany, N. Y. Mr. S. E. Koehler has been appointed to fill the vacancy at Norwich. Mr. J. T. Stewart, of the Manchester, N. H., bureau, days, has resigned and his place has been filled by Mr. J. W. Taylor, who was formerly on night duty. The latter place, nights, is filled by Mr. T. E. Hunt.

Mr. F. M. McClintic has been appointed chief operator of the Texas circuit and day and night local correspondent of The Associated Press at Dallas, Tex., succeeding J. H. Ward, resigned.

NEW ORLEANS, LA., WESTERN UNION.

James Whann, for years a Western Union operator, died a few days ago.

Joseph Thomson is the new manager of the Maritime Exchange branch office. Mr. Thomson is much liked and best wishes are extended to him.

Friend Cotthrell is in charge of the race track office, ably assisted by Messrs. Garland and Mauberrett.

Messrs. Nicholson and Murray work race wires in the main office and two better men could not be found in a day's walk.

Inspector Morris passed through here on his way to Lake Charles. Mr. Morris is full of enterprise and business.

Division Traffic Chief Gilthorpe has lately married. Best wishes are extended.

Superintendent J. M. Stephens passed through New Orleans on a hurried business trip one day last week.

Among our promising young operators we find Messrs. E. L. and A. J. Hamm, McMahon, Waitz, Ford and Relf.

Mr. Perry is now manager of the fruit dispatch office.

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DALLAS, TEX., WESTERN UNION.

The personnel of this office remains practically unchanged. A few have been added to the extra and regular list. All extra men are making more than full time, and the block is vacant for once. Business continues good, notwithstanding the shortage in cotton as well as other crops.

The different quads are named as follows: Fort Worth-Dallas local, Elmer Cox, B. M. Martin, with Operators L. O. Moore and J. S. Maddox at Fort Worth; St. Louis, Roy Montgomery, E. E. Jackson; Houston, Harry Johnson, Charles M. Rapp; New Orleans, A. L. Adair, John Bogan; San Antonio, P. M. Wilson; Kansas City, Harry Hopkins, C. S. Aycock; Galveston, W. J. Wilhoite, George M. Brinkley; Chicago, S. J. Braun, recently of Chicago, and Charles Sale.

John B. Whitacre, son of our night chief operator, died on November 12, at El Paso. This makes two deaths in Mr. Whitacre's family in the past year.

Mr. Harry Johnson of this office was recently married, and the couple are now making their home in Oakcliff.

BOSTON, MASS.

Typewriters for sale, to rent and repaired. Remington, Smith, Densmore and all makes sold or rented on easy monthly terms to telegraphers. Send for samples, catalogues and full information to E. M. Bennett, Manager, The Typewriter Exchange, 38 Bromfield Street, Boston, Mass.

POSTAL.

J. D. MacDonald has been appointed assistant traffic chief, days.

Nathan H. Tracey, who looks out for the interests of the Postal at the Globe office, days, was married to Miss Lillian Michaels of New York, November 3. Several of Mr. Tracey's Boston friends went to New York to attend the wedding. Mr. and Mrs. Tracey are residing in Roxbury.

G. D. Bourcy of the Herald force is spending a month's vacation down in Maine hunting. J. D. Shoemaker, a broker operator, is filling in his time during his absence.

The Harvard-Yale football game occasioned the sending of a large amount of press matter.

The many friends of Frank C. Frazee will be pleased to hear that he has been admitted to the bar, and is now practising law at Baldwinsville, N. Y. Mr. Frazee resigned his position as manager at the Globe office recently, after having received a degree at the Boston University law school.

J. J. Benelisha, who is with a firm of brokers in the stock exchange, is putting in some "extra" evenings at the main office during the fall rush.

MONTREAL, QUE., GREAT NORTH WESTERN.

George Falle has been appointed manager of the Great North Western and Canadian Pacific Railroad Telegraph Companies for Montreal north branch office.

Mr. Lefebure, a former operator, has been transferred to St. Lawrence Hall managership.

Mr. James Tucker of the delivery department was married to Miss Mary Ann O'Sullivan.

Miss Malvina St. Pierre is ill at the Montreal General Hospital.

Mr. D. Aoke, director of Imperial Posts and Telegraphs, Yokohama, Japan, was a recent visitor.

Mr. Robert Kane has been transferred from the second Toronto wire to the lightning stock and market wire. Mr. David Barclay of the Halifax duplex replaces him.

George Alexander met with a painful accident lately. He slipped and fell against the chief operator's desk, his right hand striking the hook thereon on which messages are filed, and which passed almost entirely through his hand. He was laid up for over a week, but is now convalescent.

Mr. R. E. McCord, who has been acting as wire chief for the past year will from henceforth be known as traffic chief, Chief Operator Walter Graham having assumed control of the switch. Chief McCord fills all positions admirably.

CHICAGO, ILL.

Typewriters bought, sold, rented and repaired. Renting a specialty. Also Agency for "Telegraph Age." Telegraphers' Typewriter Co., Room 5, 122 La Salle St., Chicago, Ill. Be sure to mention TELEGRAPH AGE.

SOMETHING NEW—no operator should be without. The Eacutt-Cawthern Typewriter Cleaner is a simple little brush; can be inserted in machine in two seconds, type thoroughly cleaned in 30 seconds without soiling fingers. Formerly required 15 minutes, and soiled and inkstained fingers. Price 50 cents, postpaid. Agents wanted. Eacutt and Cawthern, Room 704, 86 La Salle St., Chicago, Ill.

POSTAL.

E. W. Blakely, manager of the Columbus, Ohio, office, was a recent visitor. He was shown about the office by Mr. Brosnan.

Operator Whitaker at New York sent Operator Simpson at Chicago 200 messages in two hours and a half the other evening on the bonus wire, an average of eighty messages per hour.

C. P. Wright, who has been ill, has returned to duty.

Frank Farrell is sick; we understand he has injured his eye.

Mr. Hatch has gone to Cleveland for a short visit.

QUEBEC, QUE., CANADIAN PACIFIC.

Manager F. G. Mahon of this office spent Thanksgiving Day in Montreal.

Messrs. A. R. McDonald & Co. have leased a wire from this company direct to New York.

NORTH SYDNEY, C. B., NOTES.

Mr. J. F. Dennehy of the Western Union Telegraph Company has resigned to become proprietor of the British-American Hotel at Halifax, N. S.

Mr. Alfred Robinson of the Anglo-American cable staff has gone to New York in the interests of his new perforator, which is being developed for telegraph service.

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PHILADELPHIA, PA.

MY MOTTO—HONORABLE DEALING.

I will wager from $100 to $500 (seems incredible, doesn't it, that an "op" should possess this amount, still I have it and it is mine) that Henry V. Emanuel, of Philadelphia, using a No. 6 Fay-Sho Typewriter in a fifty message contest will defeat any telegrapher in this country using any other typewriter than the No. 6 Fay-Sho.

THE NO. 6 FAY-SHO IS THE FASTEST TYPEWRITER IN THE UNIVERSE.

Mr. Emanuel holds the world's record created by him on this typewriter of Madison Square Garden, May 14, 1898.

Send for circulars giving telegraphers' special price and terms.

D. A. Mahoney,
Special Representative.
Main Office, W. U. T. Co.,
Philadelphia, Pa.

Read the notice at the top.

WESTERN UNION.

Our sympathy and that of many friends is hereby extended to E. W. Bartholomew, of The Associated Press, in the loss of his little daughter who died recently after a very short illness.

Christopher Troeller, the new manager for the office at Chester, Pa., has already become popular with the patrons of that office.

After a short sojourn at Altoona, Pa., A. P. Jones concluded that Philadelphia suited him best and he is again with us.

The floor boys and their Christmas list are very much in evidence just now. Artist Vollrath excelled himself decorating the cover of the list.

A Merry Christmas to one and all! May Dame Fortune bless us all with a lavish hand in the New Year that will soon dawn upon us.

Harry A. Given, of this office, has again erected his Christmas grove with the usual mechanical arrangements, including scenic railway, fountain, merry-go-round, Ferris wheel, water-fall, blacksmith shop, saw-mill, bicycle riders, mill and music box. Water is the motive power and when the device is in motion one is reminded of fairy-land. It will be open to the public until January 18, between the hours of 7 P. M. and 10 P. M. All are welcome to see this marvelous panorama at his residence, 262 North Clarion street.

POSTAL.

Christmas seems to be the one absorbing thought, everybody appears to be making some arrangement for his own or others happiness; requests for leave of absence are already on file, and the check boys have anticipations of a generously filled Christmas sheet.

Some, however, will not be so very happy, as death entered the home of Miss Gertrude McLaughlin, operator at the Hotel Lafayette, and removed a beloved mother. Miss McLaughlin has our sincere sympathy. She was relieved for a few days by Miss Lillian Greiner, of this office.

Mr. Edward Hibbs, assistant to Mr. Stump, at the Fish District office, was absent several days on account of sickness. The Messrs. Geo. Plattenberg and Chas. McIntire alternated as his relief.

Mr. J. J. Fourney, of the Chicago local, enjoyed a short trip to New York city.

Home attractions were so strong that Mr. J. A. Thomas could not resist the temptation to spend a few days with his parents at Pittston, Pa.

Resignations: William Hagan, to go South, and Frank G. Spiker.

Visitors: Mr. Wm. Madden and Miss Brosnahan, two former office associates, now in business at Mahanoy City, Pa., and doing well.

Two recent changes in the branch offices are: Miss A. J. Corrigan, from Hotel Lafayette to Washington Hotel; and Miss Ida Van Vrankin from the Washington Hotel to the branch office at Second and Poplar streets.

PITTSBURG, PA., NOTES.

In scanning the news and names mustered on the role of telegraphic lore in TELEGRAPH AGE, which most of our men read, I bethought myself of the genial faces of heroes of the key who stand guard day and night at the American Telephone and Telegraph Company's plant, Brushton, Pittsburg. Geographically, we are pretty far out, being five miles from the court house, but really we must not be counted out of the fraternity, because peradventure we "line 'em up" and "drop the west" under "Long-Distance" conditions.

Our manager, Mr. A. C. Terry, formerly chief electrician of the Western Union Telegraph Company, at Syracuse, N. Y., heads the scroll. Mr. Terry is well known in telegraphic circles, participating jointly with Mr. Finn in giving us the graphic volume on telegraphic apparatus.

Our wire chief is Thomas Hooper. He is an old Western Union man and judging from the way he knows his business, he made no mistake when he joined the telephone interest in its infancy.

Deafness Cannot be Cured.

by local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure deafness, and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian Tube. When this tube is inflamed you have a rumbling sound or imperfect hearing, and when it is entirely closed deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but an inflamed condition of the mucous surfaces.

We will give One Hundred Dollars for any case of Deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars, free. F. J. CHENEY & CO., Toledo, O.

Sold by Druggists, 75c.

Hall's Family Pills are the best.

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Charles White, another Western Union product true, heads the list of five assistant wire chiefs. These gentlemen are supposed to be at once ubiquitous and omniscient, the happy receptacles of troubles great and troubles small, "hello" girls and all.

Elmer Heasley, of Postal fame, has suffered no "drop in potential."

George E. Hudson, another Postal man, needs no introduction as "Hudson's word Counter" was one of the first in the field and can be found everywhere.

W. S. Martin, a Pennsylvania Railroad man, keeps vigils during the eventide. He is our artist, blending beautifully at 11.30 P. M. with Frank Cella, of Postal identity, who guards the "coppers" till the break of day, doing all sorts of tricks on the "Bridge," taking Varleys, metallics and Murray loops.

Of the seven repeater men, The Standard Oil Company is responsible for five, namely, L. M. Whitney, L. L. Leith, H. R. Curtis, J. H. Macklin, and C. B. Unangst. These "pipe liners" the wire chief found to be strictly O. K., hence the invasion. L. L. Leith was formerly wire chief for the National Transit Company.

Charles N. Ege, an old Pennsylvania Railroad man from Altoona, and D. J. Desmond, a Western Union man from Buffalo, completes the force in the "test room."

The ticket wire men are: U. S. Foster, W. C. Leith, Edward Gorman and G. North.

L. J. Lemmon and Peter Stancliffe are our vigilant linemen, who can relieve the line of anything from a hickory tree to an ohm of spider wire.

MONTREAL, QUE., CANADIAN PACIFIC.

Mr. F. T. Jennings has returned from a well-earned vacation.

Mr. F. N. Caisse, accompanied by his wife, is absent on a trip to Hamilton, Ont., Buffalo and Niagara Falls. Mr. J. Mitchell is acting night chief during his absence.

All the employees were given a half holiday on the occasion of the King's birthday, which was highly appreciated.

Mr. Herb Keating, a former employee of this office, who has been confined to his home with typhoid fever, for the past nine weeks, has fully recovered, and was a recent caller.

Mr. Samuel J. Ritchie, a well-known telegrapher, and for a number of years past employed with a broker in this city, is reported to be seriously ill at the Western End Hospital.

Mr. James Spencer, who has returned from Grassett, Ont, where he had been for the past twelve months, is now temporarily emplowed with Fellowes, the broker, pending Mr. Ritchie's recovery.

Five new clocks have been placed in the operating room.

Mr. Al. Jarvis has returned from his annual hunting trip up the Lakes. He reports the deer plentiful this year, having been successful in capturing a fine specimen, a sample of which he generously exhibited to his many friends in and out of the offices.

Mr, H. Bott also spent a couple of weeks hunting at Labelle, Que.

Mr. J. Mitchell is visiting Kingston and Brockville, Ont.

Messrs. L. M. Walden and D. Duff have resigned and gone South. Before leaving they were joined by Mr. Souls, of the Great North Western contingent from both offices were at the station to give the trio a grand send-off. A telegram was received from New York the following morning addressed to "The Bunch, Montreal," announcing their safe arrival.

Messrs. G. P. Moss and J. W. Ross have also resigned and gone West.

Mr. Henry McCann, manager at Sydney, N. S., and a former employee of this office, was a recent visitor and received quite an ovation from his old chums of the operating room who were all glad to see him.

The King's birthday and Thanksgiving day were generally observed in this office. All the telegraphers were extended a half-day off on both occasions, which they enjoyed and appreciated.

Mr. Walter M. Godsoe, of the Canadian Pacific Railroad Telegraph, Halifax, N. S., accompanied by his bride, were recent visitors.

QUEBEC, QUE., GREAT NORTHWESTERN.

Miss Marion Pope, daughter of Superintendent Edwin Pope, was married to Rev. William Barton, Anglican priest of Grand Mere, Que.

Assistant Chief Operator M. J. O'Reilly has returned from a tour of inspection to Bathurst, N. B.

Miss Jones, an operator, does fast work with Miss W. Ada Beck, on Montreal wire.

NEW YORK CITY.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left on the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all makes—sold, $1.00 per week. B. L. Brannan, 195 Broadway, New York.

POSTAL.

Business is very heavy owing to the usual holiday rush, and the facilities of the office are taxed to the utmost in order to dispose of it promptly. The force is correspondingly happy, being able to make "extra" for the holidays. Very few are absent on account of illness, but the crop of colds is fully up to the average at this season of the year.

Mr. R. F. McKune has returned after a severe illness of five weeks, all of his family being ill at the same time.

Mr. F. E. Wheeler, who has been ill with acute nervous trouble, is back with us again.

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Assistant Night Manager D. F. Mallen is once more on duty after a pleasant vacation of two weeks.

Mr. J. J. Sutphin has reported for work after spending the summer and fall in the Adirondacks.

Mr. J. P. Gallagher's name was unintentionally omitted from the list of piece workers mentioned in the issue of December 1. He holds down the first Philadelphia bonus wire days with Mr. Fred Bauman.

Mr. W. H. Rhodes, of the second Philadelphia bonus wire, has been absent some time on account of severe illness. Mr. G. W. Barrett is taking his place until he returns.

One hundred of the resonators on circuits where typewriters are used have been equipped with the new adjustible extension arms, with the result that the volume of sound in the office has been decreased more than fifty per cent. This office is now probably the quietest large telegraph office in existence. At the same time the receivers who use typewriters have been put at their ease, being relieved from all strain, discomfort and inconvenience.

Mr. H. C. Gorrell, of this office, was married to Miss Adelaide Le Cutler, of Newark, N. J., on December 4.

WESTERN UNION.

Mr. Harry W. Sauer, president of the Telegraphers' Aid Society, has resumed work. From his appearance and his statement, he has never been in a better condition of health.

Mr. D. W. Travis, formerly of this office, has recently been appointed chief operator of the Jacksonville, Fla., office, vice Mr. Peeple, appointed night manager.

New appointments: Nathaniel Taylor, O. Gedney, Thomas Gregg, W. J. Callahan, F. A. Hoag and W. F. Moore.

Resigned: L. D. Gaskill, W. W. Scott, T. Martin, C. J. Chryst, F. W. Wolf, L. A. Walters and M. E. Redmond.

Mr. D. Aoki, M.E., inspector of posts and telegraphs, Japan, visited the office December 7.

Mr. Alfred Robinson, of North Sydney, N. S., visited this office December 8 after an absence of 19 years. He said there was not as great a change in the force as might be expected in that long time.

Miss Nellie T. Calver is again on the sick list; also Mrs. Cora Mauer.

The appearance in most of the daily papers of articles on the subject of pensioning old telegraphers created considerable excitement, and it is wondered when the system will be put in operation.

James Mitchell, aged seventy-five years, father of David B. Mitchell, manager of the Race Bureau, died at Shrigley, Ont., on December 2. Only a month ago he was a visitor to New York.

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Obituary Notes.

M. W. Bissell, a telegrapher of Columbia, S. C., died on December 3.

Charles Newton, manager of the Western Union Telegraph office at Frankfort, Ky., died on November 29.

J. F. Hare, an old-time telegrapher of the Pennsylvania Railroad Company, Jersey City, N. J., died on November 28.

John A. Parkinson, for many years in The Associated Press service in various sections of the country, but for the past year, with a broker firm at Albany, N. Y., died of typhoid fever, at that place on December 8.

J. A. Johnson, manager of the Postal Telegraph Company, Newton, Miss., his son and a negro driver were killed near that place on December 9 by a falling tree. They had gone to repair a telegraph line when a tree fell across the road, crushing them to death.

Elias W. Fish, for the past thirty years manager of the Lake Shore and Michigan Southern Railroad telegraph office at Toledo, Ohio, died on December 4. He was 55 years of age, and for the past quarter of a century, in addition to his telegraph duties, acted as agent of the Telegraphic Mutual Benefit Association for Toledo and vicinity.

Edward J. Mathews, president of the American District Telegraph Company, at Philadelphia, Pa., and one of the best known brokers and club men in that city, was thrown from his horse and instantly killed December 7. He was 65 years old. Among those in attendance at the funeral at Valley Forge, Pa., on December 10, were: Messrs. Wm. H. Baker, George G. Ward, and Edward C. Platt, of the Postal Telegraph-Cable Company, New York.

John T. Brown, manager of the Western Union Telegraph Company, at Newburyport, Mass., died November 24, aged seventy years. He was well known for his public gifts, among them being the Market square clock, the fountain at the Three Roads, the Oak Hill cemetery gates, in that city, and the library building recently given to Hampton Falls, besides clocks to Salisbury and Hampton.

John W. Sampson, an old-time telegrapher, died in Washington, D. C., December 4, of paralysis, aged 55 years. He had worked in many of the large cities of the country, but for the past ten years had been employed by the Western Union in Washington. Mr. Sampson was in the military telegraph service during the civil war, and at one time was attached to General Sheridan's headquarters. His remains were taken to Wilmington, Del., for interment.

Great hearts alone understand how much glory there is in being good.—Michelet.

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Field Telegraph Systems.

The use of electricity in warfare has, in the last few years, brought out a large number of inventions, and many feats which were useless to attempt a few years ago have been made simple. Two wars, the Boer-English and the Spanish-American, have given excellent opportunity for testing the real merits of many inventions, and in the three years' campaign in the Philippines much has been gained from observation of the workings of electricity in modern warfare. While the use of electric current for firing and sighting large guns, and the operation of searchlights for signaling and illumination, are mentioned, it is said that transmitting information by means of the telegraph and telephone has been the most general and valuable application of electricity. The extent of the business now handled for the United States military telegraph system in the Philippines is realized by comparatively few people, the figures for a single month being as follows: Manila central office, sent and received, 23,906; Luzon system, sent and received, 260,735. The messages frequently were over 1,500 words, and ranged in importance from orders from the commanding general to social invitations. All stores are ordered by telegraph, and the chief function of the mail is to carry certain printed forms and signatures required by the service, long after the real business has been transacted by wire.

Government Ownership.

The proposition that the Government shall construct and own the Pacific cable suggests the query, says an exchange, whether such a step once taken will some day be looked back upon as the beginning of governmental ownership of telegraph lines. The Government has long controlled the postal service. Through the inter-state commerce law it has taken an advanced step in the control of the railroads. By laying the Pacific cable it would establish itself in that business also. And thus we come to a general survey of the possible and probable advantage of the Government's ownership and control of all the means of communication and transportation in its territory. It is a question of growing interest and importance.

The Seattle Chamber of Commerce has taken the initiative in an endeavor to secure a trans-Pacific telegraph cable, following the northern route along the coast of Alaska and the Aleutian Islands, by passing suitable resolutions instructing Senators and members of Congress from the Pacific Coast states to use their best efforts to secure the adoption of the project.

Grotesque Messages.

An operator once copied from the wire this message: "Arrange for my funeral Sunday. Notify my family." It came from a place five hundred miles distant from the delivery office. Such messages are not infrequent, but they generally bear the signature of a third party expressing a dying request. The following is one of a kind of messages that is hard to classify, but which speaks for itself: "Father better, mules and horses all right; Eleanor buried yesterday." Some people with the best intentions use very little judgment in wording or addressing messages, and without meaning it cause great distress. This message was actually addressed to the head of a family at his place of business, from a point over one thousand miles distant where his family were temporarily staying: "Mrs. — and Ida seriously injured; Martha, Joseph and Freddie killed." Imagine if you can the feelings of that husband and father while hurrying half across the continent with the words of such a message ringing in his ears.

Marconi, of wireless telegraph fame, is now in Newfoundland arranging for the construction of a 240 foot pole at Cape Race, from which he hopes to communicate by his system with vessels 400 miles from shore.

In spite of numerous arrests and sentences for wire stealing, thieves are still at work nightly, robbing telegraph, telephone, and electric power poles of their copper wire.

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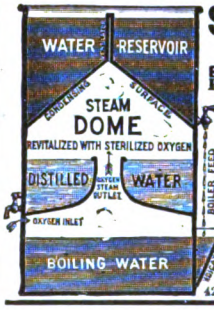
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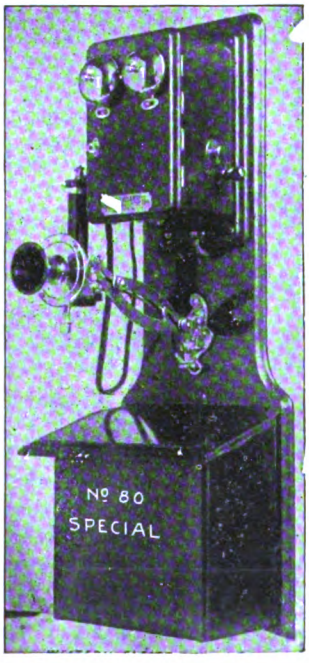
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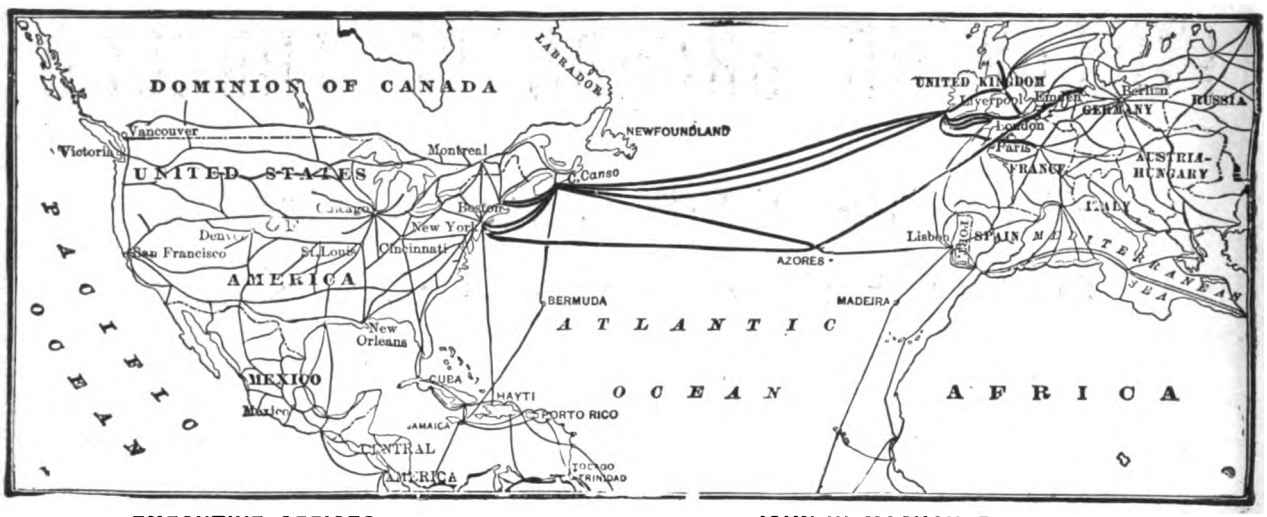
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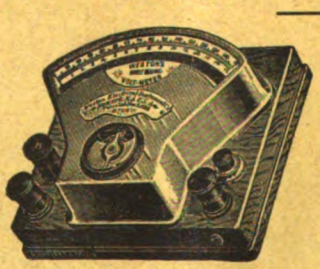
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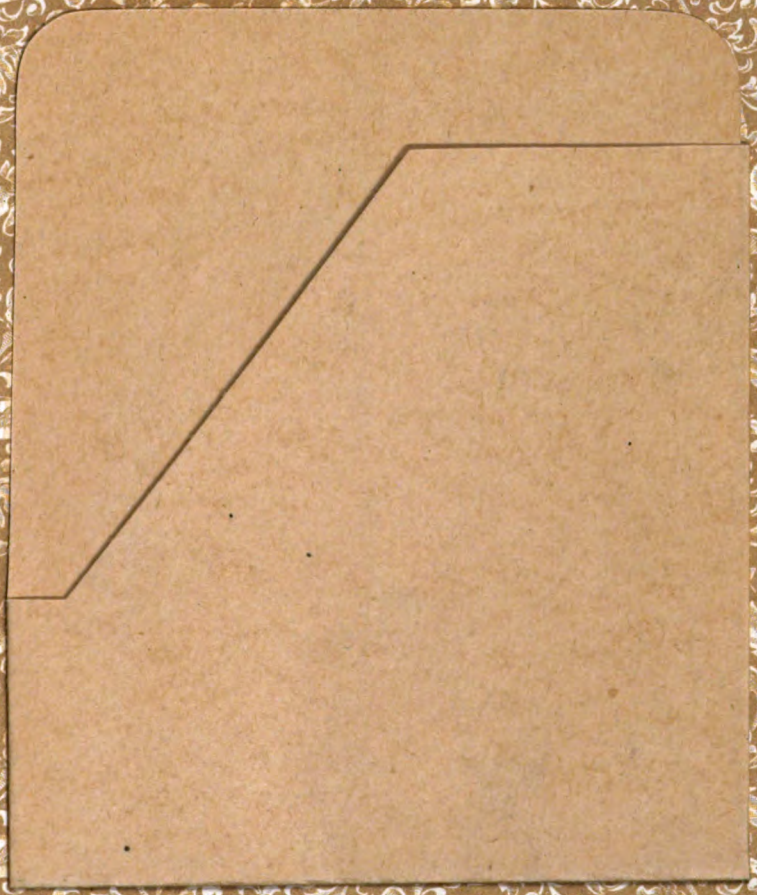
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